

FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

Russell L. Steere
President

Francis J. Longen
Treasurer

President's Message - The Friends of Agricultural Research-Beltsville is a new organization, and this newsletter is to keep members and supporters informed of its activities. There are many friends of agricultural research who want to do something to aid the ARS programs at Beltsville and be a part of the proud tradition at Beltsville. We hope that the information in this newsletter will help to keep you informed of the programs at Beltsville and stimulate your interest in supporting agricultural research.

Our Goals and Objectives - FAR-B is a non-profit corporation founded to support the Beltsville Area programs to produce and disseminate information that will keep the United States a pleasant land of plenty. FAR-B will focus on four objectives:

1. Make known the ARS resources and achievements of the Beltsville Area
2. Cooperate in the Beltsville Agricultural Research Symposia (recognized worldwide for excellence)
3. Encourage support of the rehabilitation and modernization of research structures and equipment in the Beltsville Area
4. Participate in the development of the visitors' program, including facilities and displays to acquaint the public directly with the research being done in the Beltsville Area.

Officers and Committees - To carry out the goals and objectives of FAR-B, the following officers have been elected and committees organized:

Officers

Dr. Russell L. Steere - President
6207 Carrollton Terrace
Hyattsville, MD 20781

Mrs. Jane Wall - Vice-President
1225 Pickering Circle
Largo, MD 20772

Directors

Dr. Victor Boswell
6206 43rd Street
Hyattsville, MD 20781

Mr. Joe McBride
1717 Elton Road., #205
Silver Spring, MD 20903

Officers

Mr. Francis J. Longen - Treasurer
10114 Towhee Ave.
Adelphi, MD 20783

Mrs. Dayton Klingman - Recording Secretary
2028 Forest Hill Drive
Silver Spring, MD 20903

Dr. E. E. Finney, Jr., Executive Secretary
Rm. 227, Bldg. 003, BARC-West
Beltsville, MD 20705
344-3193

Directors

Dr. Warren Shaw
1907 Edgewater Parkway
Silver Spring, MD 20903

Dr. Martin Weiss
11122 Emack Road
Beltsville, MD 20705

Dr. George Irving, Jr.
4836 Langdrum Lane
Chevy Chase, MD 20815

CommitteesSymposia Committee

George Irving - Chairman (652-8564)
Assist ARS, Beltsville, in the organization of symposia and conferences and in the publication of the proceedings.

Membership Committee

Victor Boswell - Chairman (927-2452)
Develop and carry out a program to expand the general membership of the Friends of Agricultural Research-Beltsville, Inc.

Corporate Relations Committee

Warren Shaw - Chairman (434-6213)
Interact with private firms, industrial corporations, and foundations that share a mutual interest in supporting the goals of the Friends of Agricultural Research-Beltsville, Inc., and to cultivate their goodwill and support.

Information Committee

T. C. Byerly - Chairman (474-4321)
Prepare and distribute to the public information on the goals, objectives, plans, programs, and activities carried out to benefit ARS, FAR-B, and the public in general.

Finance Committee

E. E. Saulman - Chairman (243-7946)
Monitor the financial affairs of the corporation, and provide advice to the Directors on policies for sound fiscal management.

Volunteer Service Committee

William Bailey - Chairman (459-5286)
Support the research, educational, and public service activities of ARS at Beltsville by identifying volunteers who are willing to donate their time for specific projects identified by ARS and FAR-B.

Coordinating Committee

A. A. Hanson - Chairman (434-2372)

Work with the Beltsville Area Director to learn of Beltsville's needs which FAR-B might support.

If you wish to work on a committee to support the programs at Beltsville, contact an officer or committee chairman and express your interests. Your ideas and expertise are welcomed.

The Beltsville Symposia - One of the major objectives of FAR-B is to assist with the sponsorship of the annual symposia convened each May at Beltsville.

Each symposium consists of invited oral and poster presentations by Beltsville scientists and their colleagues from other government, university, institute, and industry research laboratories in the United States and other countries. Each symposium is focused on a topic of current and continuing importance to agricultural research in which Beltsville scientists are making significant contributions.

The symposia reach an immediate audience of several hundred scientists, users of research information, and media science information people. A symposium volume is published privately and distributed by purchase to individuals and institutions, including the scientific libraries of the world.

Symposium XI, "Research Instrumentation for the 21st Century" was held May 4-8, 1986. Among the Beltsville contributions were reports of a method for objective measurements of hardness of wheat kernels. Hard bread wheat fetches a higher price than soft or mixed bread wheats, and visual methods for classifications are inadequate. Also reported was a quick non-invasive method of high accuracy for determining percentages of fat in live humans. Of great interest to many Beltsville research workers was the report of Goesch and co-workers from Texas A&M on the use of C₁₁ (half-life of 19 minutes) in research on photosynthesis and crop metabolism.

Symposium XII, "Biomechanisms Regulating Growth and Development." will be held May 3-7, 1987. Topics will include regulation of growth by specific genes, by phytohormones, insect hormones, animal hormones, by light and chemical stimuli, by nutrition, and the effects on growth of symbiotic and pathogen-host interactions.

Symposium XIII, scheduled for May 1988, will deal with the topic "Biotic Diversity and Germplasm Conservation." Diversity of fauna and flora is essential to genetic improvement of plants and animals. Genetic diversity is threatened the world over by loss of habitat, selective breeding, abandonment of traditional varieties and breeds, and environmental hazards. Among the topics which may be included are: methods for germplasm conservation and use, national biological surveys, geographic center of diversity systematics, and ecogeographic research. Beltsville is a major conservator of plant, microbial, and beneficial insect resources. It serves as a repository for world-class collections of germplasm and reference bases for systematic research in entomology, agrostology, mycology, botany, parasitology, and other systems important to research and regulatory agencies.

Membership - Members of FAR-B are individuals and groups interested in maintaining and enhancing the research productivity of Beltsville. Many of the laboratories at Beltsville are more than 40 years old and much of the equipment is becoming obsolescent. Beltsville needs a renaissance and it needs public support.

FAR-B now has 77 members, including 4 individuals who have signed on as patrons. Your membership in FAR-B is most gratefully appreciated. If you know of others who may wish to join, send them a copy of the attached Membership Application, or contact the Chairman, Membership Committee, Victor R. Boswell, 6206 43rd Street, Hyattsville, MD 20781 (Phone: 927-2452).

Thank you for your support.



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at Beltsville, Maryland)

Russell L. Steere
President

Summer 1986

President's Message - The FAR-B Newsletter has as its purpose communication with members and supporters of the Friends of Agricultural Research-Beltsville, a group of friends of agricultural research who want to aid ARS programs at Beltsville and continue the proud tradition there. We hope the newsletter will help keep you informed about the activities of this new organization and will encourage your continued support.

Our Goals and Objectives - FAR-B is a non-profit corporation founded to support the Beltsville Area programs that produce and disseminate information designed to keep the United States a pleasant land of plenty. FAR-B will focus on five objectives:

- o Make known the ARS resources and achievements of the Beltsville Area
- o Cooperate in the Beltsville Agricultural Research Symposia (recognized worldwide for excellence)
- o Encourage support of the rehabilitation and modernization of research structures and equipment in the Beltsville Area
- o Participate in the development of an extended visitors' program. This involves nurturing the facilities and displays necessary to acquaint the public directly with the research being done in the Beltsville Area
- o To encourage procedures that maintain excellence of research at the Beltsville Agricultural Research Center

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Beltsville Briefing and Tour - Many friends of agricultural research would welcome an opportunity to tour the Beltsville Agricultural Research Center and be briefed on recent developments in research at Beltsville. On Thursday morning, October 16, 1986, Dr. Waldemar Klassen, Director of the Beltsville Area, ARS, will provide a briefing for those friends and guests who wish to get an update on what is going on at Beltsville. The briefing will begin at 9:00 a.m. in the Conference Room of the Bioscience Building (Building 011A, Room 119). After about a 45 minute briefing, tours will be scheduled to some of the research laboratories.

If you would like to attend the briefing and tours at Beltsville on October 16, call the Beltsville Director's Office at 344-3193 and let them know that you plan to attend.

The tours will end at 12:00 noon in time for you to have lunch in the area. We hope that you can find time to join us on October 16.

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Thank you for your support.

Be a Part of the
Friends of Agricultural Research-Beltsville, Inc.

MEMBERSHIP

The Friends of Agricultural Research-Beltsville (FAR-B) welcomes new members. Membership is a source of support for this public service non-profit, tax-exempt corporation. FAR-B works to assist ARS in accomplishing its educational, public service, and research missions at Beltsville. It assists in the organization of symposia and conferences. It contributes to specialized collections and herbarium specimens. It will help with explorations and expeditions. It will accept contributions, gifts, and donations to benefit ARS and work to support the laboratories, greenhouses, and other research facilities and scientific equipment of ARS at Beltsville. It seeks to improve the quality of science at Beltsville.

You are welcome to become a member and supporter of FAR-B. Simply fill in the information below and mail it to FAR-B, P.O. Box 1061, Beltsville, Maryland 20705-1061.

MEMBERSHIP APPLICATION

Please enroll me as a member of the Friends of Agricultural Research-Beltsville. I understand that my contribution is tax deductible.

Membership Category (please check one):

☐

Member

\$ 20.00

☐

Patron

100.00

☐

Sustaining Organization

500.00 or more

☐

Associate Member
(USDA Employees: non-voting member)

10.00

Name _____
(last first middle initial)

Address _____

City _____ State _____ Zip _____

Phone No. _____

Mail to: Friends of Agricultural Research-Beltsville, Inc.
P.O. Box 1061
Beltsville, Maryland 20705-1061

The purpose of this report is to provide a detailed description of the land area described in the title of this report. The land area is located in the State of California, and is situated within the boundaries of the National Forest System. The land area is described as follows: [The following text is a detailed description of the land area, which is too faint to transcribe accurately.]

The land area is situated within the boundaries of the National Forest System, and is located in the State of California. The land area is described as follows: [The following text is a detailed description of the land area, which is too faint to transcribe accurately.]

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Russell L. Steere
President

February 1987

President's Message: Annual Meeting Reminder - March 10, 1987 - The
Annual Meeting for the membership of the Friends of Agricultural Research
-Beltsville, Inc. will be held:

TUESDAY, MARCH 10, 1987
1:00 p.m.

Bioscience Building Conference Room
(Room 119, Building 011A)
Beltsville Agricultural Research Center
Beltsville, Maryland

AGENDA

1. Call to Order by the President
2. Approval of Minutes of February 1986
General Membership Meeting
3. Treasurer's Report.....F. Longen
4. Report of the President.....R. Steere
5. Committee Reports:
Symposia.....G. Irving/C. Golumbic/G. Steffens
Information.....T. Byerly
Corporate Relations.....W. Shaw
Membership.....V. Boswell
6. Nomination and Election of Directors to 3-Year Terms:
Three members of the Board of Directors are to be elected. The
following three names have been submitted by the Nominating
Committee: Calvin Golumbic, George W. Irving, Jr., Warren C. Shaw
7. Unfinished Business
8. New Business
9. Comments from the Beltsville Director
10. Adjournment

All members and friends are urged to attend this meeting to learn what is going on at Beltsville and to express your views on things that need to be done during the coming year. The annual meeting is a good opportunity to get together to see each other and to renew old friendships. Over 125 individuals joined FAR-B during the past year. Many look forward to seeing you on March 10.

Proxy Vote - If you cannot attend the March 10 annual meeting, the FAR-B Bylaws provide an opportunity for you to be represented through a proxy. The Bylaws state: At any meeting of the corporation, members may cast his or her ballot as to any issue by proxy. Any such proxy shall be by written designation in a form acceptable to the Board of Directors; but containing at least the names of the Grantor and Grantee of the proxy. The form shall be signed by the Grantor and indicate the duration of the proxy. (A proxy for your use is at the end of this newslsetter.)

Membership Renewals - The membership year for FAR-B is April 1 through March 31. Your generous support during the past year has enabled FAR-B to carry out its pledge to aid the ARS research programs at Beltsville.

If you are planning to attend the annual meeting on March 10, you may wish to renew your membership at that time. If not, we invite you to make out your check to FAR-B and mail it to P.O. Box 1061, Beltsville, MD 20705. Your membership renewal will be acknowledged in a subsequent newsletter.

Members who paid their fees after December 1, 1986, will be considered paid up through the membership year which ends March 30, 1988.

Beltsville Scientist Receives Prestigious Prize - Theodor O. Diener, a research scientist in the Plant Protection Institute at Beltsville, will receive the 1987 Wolf Prize in Agriculture. His selection for this prestigious international award was made in Israel and carries with it a prize of \$100,000.

Dr. Diener is the celebrated discoverer of viroids, the smallest known agents of infectious disease that consist of short strands of RNA. Diener and his colleagues have sequenced the potato spindle tuber viroid and identified the nucleotide sequences that are responsible for pathogenicity. They developed nucleic acid hybridization techniques that are used commercially for diagnosing viroid infections in the field. Viroids are the cause of many plant diseases and have been suspected of causing some animal diseases.

Dr. Diener, a member of the National Academy of Sciences, is being recognized for his discovery of viroids and his research contributions for the benefit of mankind. The Prize will be awarded in Israel at a special ceremony of the Knesset in Jerusalem.

Honors and Awards - Outstanding research productivity and other contributions of ARS employees at Beltsville are being recognized both within and outside of the USDA. In addition to Dr. Diener, who received the \$100,000 Wolf Prize, others who have been cited include:

Dr. Philip Kearney - ARS Distinguished Scientist of the Year. (\$40,000 Research Award; \$5,000 cash).

Dr. Terry B. Kinney - The Presidential Rank Award (\$20,000) given by President Reagan. He was the only USDA recipient.

Dr. Thomas J. Army - Presidential Meritorious Senior Executive Award (\$10,000)

Dr. Walter Mertz - Recognized for his leadership and his research on the relation of Cr to cancer and diet. (\$4,500) The award was presented by Secretary Lyng.

Dr. Thomas Sexton - The National Turkey Federation Award (\$1,000).

Dr. Helene Cecil - Elected President of the Poultry Science Association.

Dr. Lloyd Knutson - Elected President of the Entomological Society of America.

Dr. Richard Zimmerman - USDA Superior Service Award.

Dr. Darwin Murrell - President, American Association of Veterinary Pathologists.

Dr. Karl Norris, USDA Distinguished Service Award.

May Symposium in Agricultural Research - Theron S. Rumsey and George L. Steffens, Co-chairs of Beltsville's Symposium XII, are moving ahead with plans for the program scheduled for May 3-7, 1987. The theme this year is "Biomechanisms Regulating Growth and Development." Thirty-one outstanding speakers have been invited to discuss the most recent developments in the fields of biochemistry and physiology as they relate to the growth and development of animals, plants, and insects. A special dinner with a guest speaker will be held at Martin's Crosswinds in Greenbelt on the evening of May 6.

The Symposia Committee has announced that full members of FAR-B who wish to attend the symposium will be able to register at the reduced student rate of \$40. (The May 6 dinner is an additional \$23.) Those wishing to attend should notify either Dr. Steffens or Dr. Rumsey by April 27.

Volunteers Needed at Symposium - Volunteers will be needed to assist with a number of activities associated with the symposium in May. For example, help will be needed to put registration packages together. People will be needed to handle microphones during question and answer sessions each day. The registration desk must be manned from 5:00 to 8:00 p.m. on Sunday, May 3, and all day on Monday, May 4. Drivers are needed for occasional trips or errands.

If you are willing to volunteer your services, please call Joanna Weirman at 344-2506. She is assisting Drs. Steffens and Rumsey in organizing and managing the May symposium.

ARS 1988 Budget is Up - President Reagan's budget proposals for fiscal year 1988 recommends more than \$537 million for ARS research programs, almost \$40 million above this year's level. Dr. T. B. Kinney, ARS Administrator, emphasizes that this is welcome evidence that ARS programs remain a high priority.

Some specific increases are: \$7 million for crop germplasm collection, maintenance, and evaluation, and \$2 million for research to decrease fats in beef, pork, lamb, and poultry.

Log Lodge to Become National Visitors Center - The Log Lodge at the Beltsville Agricultural Research Center is a familiar landmark to thousands of current and former employees and visitors to Beltsville. The building was constructed in 1936-37 by members of the Civilian Conservation Corps (CCC). The Log Lodge will soon be converted to a new use.

ARS has developed plans to renovate the Log Lodge and turn it into a National Visitors Center. The rustic character of the building's exterior will be retained. The remodeled interior will contain an orientation room, an exhibit hall, office space for the staff, and storage for supplies and equipment. The orientation room will accommodate about 60 people. Construction is expected to begin about March 1, 1987.

The main focus of the exhibits will be on ARS research from across the nation. It will provide an ARS welcome and contain a time line of great discoveries in agriculture. A pictorial index of the scope of agricultural research will be featured. The Center will tell the Beltsville story. Individual research displays will be changed as needed to keep current with changes in the research program. The Visitors Center will also contain the ARS Scientific Hall of Fame and the ARS Scientist of the Year displays.

Hubert Kelley, Director of the ARS Information Staff, has provided the initiative to develop this new ARS National Visitors Center at Beltsville. We will keep you advised as this new project moves ahead.

Voting Proxy for Annual Meeting

PROXY

I, _____, hereby authorize _____ to cast my vote as proxy for me at the Annual Meeting of the Friends of Agricultural Research-Beltsville, Inc. to be held on March 10, 1987, on any issue which may be put to a vote at said meeting.

(Signature)

(Date)



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June 1987

Annual Report - Russell Steere, President:

Friends of Agriculture Research-Beltsville (FAR-B) has completed its first year. During the year much time was spent getting FAR-B organized as a recognized, non-profit, tax-exempt organization and in soliciting members.

Seven committees have been established and they are listed here with the current chairperson:

Information	Jane Wall
Membership	V.R. Boswell
Coordinating	A.A. Hanson
Corporate Relations	George Irving
Symposia	T.C. Byerly
Finance	E.E. Saulman,
Volunteer Service	William A. Bailey,

Now that FAR-B is a functioning organization we plan to vigorously pursue the solicitation of Corporate memberships.

I personally wish to thank all of the Officers, Directors, Committee Chairmen and Committee Members for their time and effort. Special thanks are due to Doris Wray and Connie Klingman who served so well as recording secretaries during our first year.

I am especially grateful to Dr. Essex E. Finney, Jr., Executive Secretary, and to his secretary, Peggy Cinereo, for their unyielding support in helping us become a functioning unit.

At our annual meeting on March 10, we voted to continue Directorships for Geroge W. Irving and Warren Shaw. Martin Weiss requested that we replace him and for that position we voted in Calvin Golumbic. Because of the recent death of Warren Shaw (see below), the board has selected Dr. T. C. Byerly to serve as a director.

The Information Committee has taken the the first steps in providing information regarding BARC to State, Prince George's County and Local City Offices and to our State Senators and Representatives.

Reports of activities of various committees will be furnished by the Chairpersons in this and subsequent Newsletters.

Renovation of the Log Lodge is underway. When completed it will be the National Agricultural Visitors Center and we will seek FAR-B volunteers to help the staff care for the needs of visitors.

Beltsville Symposium - George Irving, Chairman - The Symposia Committee was involved for the first time this year in helping prepare for the Annual ARS Symposium in Agricultural Research. The 1987 symposium, the twelfth in this annual series was entitled "Biomechanisms Regulating Growth: Keys to Progress" and was held May 4-7 at the Agricultural Research Center in Beltsville, MD.

The Committee's primary responsibilities had to do with financial support for invited speakers and students and arrangement for a distinguished speaker at the symposium banquet. During the winter months the Committee sent letters to officials of some 80 food and agricultural companies and associations describing the 1987 symposium and explaining the role of FAR-B and its Symposia Committee in supporting it. It was pointed out that the thoroughness with which the symposium would be able to cover the moving front of science in this field would depend in large measure upon the extent to which eminent researchers here and abroad could participate. Some of the funds sought from contributors were to be used to defray travel and subsistence costs of those speakers who required it. Another portion of contributed funds were to be used to enable a selected few promising students in agricultural research to attend the symposium sessions.

Nineteen responses were received to the Committee's letters and seven contributions totalling nearly \$5,000. The seven--Coca-Cola Company, The Proctor and Gamble Company, Hershey Foods Corporation, H.J. Heinz Company Foundation, Monsanto Company, Nabisco Brands, and the American Soybean Association -- were recognized as contributors on the printed symposium program. All have been promised a copy of the symposium proceedings when the volume is available.

The Committee regards this initial effort as moderately successful in generating outside interest in and support of the Beltsville symposia. In its forward planning the Committee hopes to find means to encourage contributors to make one-time donations of such size that a fund can be established, the income from which will be adequate to support the needs of each year's symposium.

Distinguished Scientist Award - R. L. Steere, President - At the symposium banquet on the evening of May 6th, the Friends of Agricultural Research, Beltsville, presented a Distinguished Scientist Award to retired microbiologist, Dr. Mary Shaw Shorb. This award was in recognition of the pioneering research Dr. Shorb conducted some 40 years ago leading to the identification and mass production of vitamin B₁₂. This vitamin is

essential to the prevention and treatment of pernicious anemia, a blood disease which affected some 50,000 Americans annually in the early part of this century. At Beltsville Dr. Shorb discovered that Lactobacillus lacti, required a then-unidentified growth factor present in high concentration in certain liver extracts. This factor she called "LLD". A subsequent publication, after she began research in the Poultry Department of the University of Maryland, contains the suggestion that the LLD factor might be the pernicious anemia factor.

Karl Folkers, then at Merck, and his colleagues used the LLD assay in their research leading to the crystallization and identification of Vitamin B₁₂.

Dr. Shorb and her husband, Doys, live on Montgomery Road in Beltsville.

We look forward to making the Distinguished Scientist Award an annual event as one way to encourage excellence in research at Beltsville.

Warren Shaw Remembered — Warren C. Shaw, a charter member, patron and Director of FAR-B, died on May 18, 1987. Dr. Shaw had a long and distinguished career as a scientist and National Program Leader within the Agricultural Research Service. He was especially celebrated for his contributions to herbicide discovery and evaluation systems which are in wide use by the chemical industry. Dr. Shaw played a key role in founding the Weed Science Society of America. The Secretary of Agriculture gave him a USDA Superior Service Award in 1962 and the highest honor, a Distinguished Service Award, in 1981. Dr. Shaw retired from ARS in 1985. He was buried at Arlington National Cemetery on May 26. His cooperation and enthusiastic leadership will be deeply missed by his friends and associates. We will miss Warren's contributions as Director and Chairman Corporate Relations Committee.

FAR-B has received a special contribution in memory of Dr. Shaw. If further contributions are received, we will establish a Warren Shaw Memorial Fund to be used for special purposes which Warren would have wished to support.

Membership Renewal Reminder - V. R. Boswell, Chairman Membership Committee - Membership renewals for the current membership year (4/1/87 through 3/31/88) are lagging. No doubt many of you have just overlooked paying your dues for the current year. Whatever the reason, we need your support and urge your cooperation in keeping FAR-B an active and purposeful organization. Rather than send out individual reminders (postage can be quite costly) we have developed the following list of members who have renewed their membership for 1987 and those who joined subsequent to December 1986 and, who are therefore, considered members in good standing through the current membership year. If your name is not listed, you have not renewed your membership, according to our records.

Patrons

Ruth L. Busbey
Walter Carleton
Joseph Hamilton
George W. Irving, Jr.
H. Rex Thomas

Personal Members

Dennis F. Abe
Mrs. Lyle T. Alexander
W. H. Allaway
Robert L. Almond
Dale L. Anderson
Bernard A. App
William A. Bailey
Alfred H. Baumhover
Edward K. Bender
C.C. Blickenstaff

Olive Baxley
Morton Beroza
Joel Bitman
Victor R. Boswell
Philip L. Breakiron
Ross Brubaker
Ted C. Byerly
Lowell E. Campbell

Carl W. Carlson
Betty M. Comings
Donald M. Crooks
Charles L. Duncan
John F. Fleming
Lucil L. Fonda
Calvin Golumbic
Michael Gurevich

Kenneth A. Haines
Clarence H. Hanson
Lyman S. Henderson
Richard A. Herrett
Ralph E. Hodgson
Clarence H. Hoffman
Paul E. James
John N. Kaplanis
John W. Kennedy
Dayton L. Klingman

Constance N. Klingman
Randall K. Latta
Francis J. Longen
Tim Maloney
Frederic O. Marzke
Joseph F. McBride
Jack P. Meiners
John G. Moseman
C. R. Parencia, Jr.

Robert E. Redfern
Ernest E. Saulman
Earl D. Sharar
Russell L. Steere
Cecil H. Wadleigh
Jane D. Wall
Everett J. Warwick
Martin G. Weiss

Associate Members

Jean R. Adams
James D. Anderson
Thomas H. Barksdale
B.Y. Endo
Aldo Ferretti
Essex E. Finney, Jr.
Roger W. Fuester
A. Morgan Golden
Kenneth C. Gross

James L. Hilton
Patricia C. Jackson
Lloyd V. Knutson
Joan Lunney
William R. Lusby
Autar K. Mattoo
J. Jack Murray
John Neal
H. Graham Purchase

Sheldon Reiser
W.E. Shainline, Jr.
S.L. Sinden
Lewis W. Smith
George L. Steffens
Alley E. Watada
Raymon E. Webb
William P. Wergin

In the event your membership renewal was mailed shortly before this Newsletter went to press, our apologies. We will acknowledge such renewals separately. Also, if you disagree with our roster records or have any questions, feel free to drop a note to or call our Membership Chairman, Victor R. Boswell, P.O. Box 1061, Beltsville, MD 20705.

HELP NEEDED

HELP - FAR-B is growing, and that means that volunteers are needed to help with the increasing work load involved in communication with and between members and supporters and outreach to the public for support.

The production of the newsletter is a big chore and there are many tasks involved in its preparation and mailing, but the newsletter is only published quarterly so the work is not continuous.

1. FAR-B needs a volunteer to request and receive the items that are to appear in an issue and to oversee preparation and approval of drafts and production of the final drafts.
2. FAR-B needs a volunteer or volunteers who can type the drafts of the newsletter.
3. FAR-B needs a volunteer who is capable of producing the mailing labels for the newsletters. These labels are presently stored on a disk in a format readable by a telex personal computer. So if no FAR-B member has access to such a machine, the entrees will have to be transferred to another disk or will have to be typed individually.
4. FAR-B needs several volunteers willing to spend one or two hours preparing the approximately 200 newsletters we now send out. This involves putting mailing labels on envelopes, stapling the pages of the newsletters, folding the newsletters, inserting the newsletters into the proper envelopes (some people receive additional material, stamping envelopes as required, and taking the letters to the post office.

Other chores for FAR-B have to be done more often but take relatively little time at any one sitting.

1. FAR-B needs a volunteer(s) to receive the names and addresses of new members, to send each of these persons a letter of appreciation, and to add the names and addresses to the membership list and to the mailing lists. This task, of course, is related to producing the mailing labels for the newsletter.
2. FAR-B needs a volunteer to receive and deliver phone messages.
3. Far-B needs a volunteer to handle the necessary ordinary xeroxing (this does not include reproducing the newsletter).
4. FAR-B needs a volunteer to handle special mailings. These do not occur regularly.

Notes from Director of BARC - Dr. W. Klassen - Dr. T. O. Diener of the Plant Pathology and Microbiology Laboratory, Plant Protection Institute, will be awarded the National Medal of Science, which is the highest award for science given by the president of the United States. The award will be presented to him June 25, 1987, in the Rose Garden at the White House.

Dr. Essex Finney has been reassigned as Associate Administrator of the North Atlantic Area. We will all miss him very much.

- An exceptional new strawberry, Lester, is now available to the home gardener. Very productive and resistant to root rot, Lester ripens earlier, is more attractive, and has a skin less susceptible to shipping damage than other midseason varieties, making it more marketable. It is sweet with a good aroma. Resistant to leaf diseases and fruit rots, this strawberry is best adapted to the Mid-Atlantic area but has been grown from New England south to North Carolina and from Maryland west to Illinois.

Gene L. Galletta, Beltsville, MD
(301) 344-4652

- The first Russet potato with resistance to the golden nematode, a potentially serious pest of potatoes worldwide, has been bred in an ARS lab. For 40 years, agricultural officials have recognized the golden nematode as a threat to U.S. potato crops and contained it—with quarantines, local controls, and inspections—to parts of New York, where it was first found in this country. Called NemaRus, the new potato can be grown for high yields in Northeastern States and Florida and in Mid-Atlantic States under irrigation. It is also resistant to widespread virus diseases and to fusarium tuber rot, a serious disease of stored potatoes.

Raymon E. Webb, Beltsville, MD
(301) 344-3380

- Four colorful new crape myrtles resistant to powdery mildew disease have been released by ARS ornamental breeders to cooperating wholesale nurseries. All the new crape myrtles are semidwarfs, with colors ranging from white to medium pink and lavender. They are unusually cold-hardy. The frequent spraying necessary to control the disease is impractical for home gardeners. The new cultivars are Acoma, Hopi, Pecos and Zuni.

Donald R. Egolf, Washington, DC
(202) 475-4862

- Pesticides in agricultural runoff flowing through tidal marshes may be trapped and broken down in marsh sediment before they can pollute the Chesapeake Bay. Working in a micro-ecosystem designed to trace and measure vertical and horizontal movement of pesticides, scientists found that isotope-labeled atrazine was chemically inactivated and tightly bound to organic matter in marsh sediment. It had been assumed, but not scientifically confirmed, that pesticides could build up to levels injurious to life in tidal marsh ecosystems. This experiment suggests that marshes have a natural filtering system that prevents such buildup.

Allan R. Isensee, Beltsville, MD
(301) 344-3297

- Lichens—small plants composed of fungi and algae—may be an index of air quality. Scientists from ARS, Tel Aviv University, and Israel's Volcani Center discovered that tree lichens transplanted from a rural area to a smoggy city produced less of one hormone (indole-3-acetic acid) and 50% more of another (ethylene). Further research may lead to using lichens in monitoring air pollution. Scientists also want to know more about how lichens may affect trees, for example, by releasing hormones that stimulate tree growth.

Jerry D. Cohen, Beltsville, MD
(301) 344-3632

- Picking the gypsy moth's brain revealed a scientific first—a hormone that controls growth and molting in this pest. The hormone, PTTH, could lead to a safer insecticide—perhaps through genetic engineering—that would affect only the gypsy moth. The pest causes millions of dollars in damage to the Nation's forests and shade trees each year. Isolating this hormone may lead to controlling the pest by genetic engineering.

Edward P. Masler, (301) 344-1732/
Thomas J. Kelly, (301) 344-1787
Beltsville, MD

- To transfer biocontrol technology, ARS scientists worked with Maryland officials to use European weevils to attack pesky *Carduus* thistles, also from Europe. The weevil can be used in many States to eat seeds of the thistles in pastures and highway plantings. In a 4-year cooperative study, the imported weevils controlled up to 95% of thistles at highway test sites in Maryland. The State's transportation department spends more than \$200,000 a year to control the thistle with mowing and herbicides.

John J. Drea, Beltsville, MD
(301) 344-1791

- Eighty new strains of *Bacillus thuringiensis* (BT) have been discovered by a new isolating method that is both simple and rapid. The bacteria are now marketed in products that control certain crop-eating caterpillars, but scientists worldwide want to increase the number of pests that BT could control. The method is a long-sought breakthrough to distinguish among closely related strains of the bacteria and thus opens the way to possible farm and garden use of BT for control of many more insect pests.

Russell Travers, Beltsville, MD
(301) 344-4331

- An overlooked mite—too big for the microscope but too small to be seen with the naked eye—was found to cause leaf yellowing of zoysia, a popular lawn grass from the Orient. Scientists had thought that a virus was the culprit until they discovered the tiny, submarine-shaped mite (*Eriophyes zoysiae*) on and inside zoysia grass blades, sucking up the plant's juices. Now that they know what to look for, researchers can work with only mite-free plants in developing economical zoysia seed for lawns and ballfields. Most homeowners today plant zoysia in plugs, bits of sod that spread to make a rugged, drought-tolerant lawn.

Nichole O'Neill, Beltsville, MD
(301) 344-3331

- Virus-free apple trees are being propagated commercially from tissue cultures, thereby cutting from 3 years to 5 months the time it takes to produce plantable trees. With tissue culture, apple shoots are grown from tissue to plantlets and then rooted in small slugs of a nutrient medium. Gala, a new apple variety, this year became the first to be commercially propagated from tissue culture and marketed. ARS scientists perfected the micropropagation technology and tested it for 7 years before it was commercialized.

*Richard H. Zimmerman,
Beltsville, MD
(301) 344-4647*

- Plants tissue-cultured in test tubes are not necessarily free of two of the smallest known disease-causing organisms: viruses and viroids. To detect these organisms, the RNA from a known virus or viroid is used to make a strand of complementary DNA, or cDNA. Scientists use the strand to recognize viral or viroid RNA in a plant tissue extract. The cDNA and RNA of related or identical viruses and viroids will automatically link together. The technique has already been used to detect and compare viruses in fruit and bulb crops and to check seed potatoes for the potato spindle tuber viroid.

*Roger H. Lawson/Ramon L. Jordan/
John Hammond, Beltsville, MD
(301) 344-3244*

- It is now possible to "vaccinate" an alfalfa plant against one race of a disease-causing fungus with spores of a closely related fungus to which the plant is already immune. The disease is anthracnose, a scourge of alfalfa that causes damages of about \$200 million annually. One variety of alfalfa has been bred that is resistant to Race 1 of the anthracnose fungus but will succumb to Race 2 of the fungus. If spores of Race 1 are sprayed on the plant, however, its immune reaction also makes it immune to the Race 2 fungus. The discovery provides scientists with a new technique for studying how genetic resistance works in alfalfa.

*Nichole O'Neill, Beltsville, MD
(301) 344-3331*

- Hard wheat kernels grind slower and louder than soft ones. Two new instruments make use of these characteristics in measuring the hardness or softness of wheat—a key to grading and pricing this major crop. One machine measures the force needed to crush a kernel, while the other reads the sound pattern made by grinding. U.S. Federal Grain Inspection Service officials hope one of the machines will accurately distinguish hardness in new wheat varieties. Many come from crossbreeding traditional hard and soft wheats and are therefore difficult to judge by sight. Since wheats can get mixed during marketing, the hardness test should help U.S. sellers confirm their grain's quality and raise the quality of domestic flour and the value of wheat exports.

*Charles R. Martin, Manhattan, KS
(913) 539-9141*

*Karl Norris, Beltsville, MD
(301) 344-3650*

- Seed oil rich in epoxy acid of value to industry can be harvested from the East African vernonia plant. The epoxy acid can be used in chemical coatings, plastics, and adhesives. The African plant is the first vernonia species known to mature all of its seed at once so that a complete crop can be harvested.

*Robert E. Perdue, Jr., Beltsville, MD
(301) 344-2431*

- Lowering U.S. need to import rapeseed oil is a possible benefit from two new varieties of crambe. BelAnn and BelEnzian crambe could produce two crops per season on 22,000 acres. The new crop, being further tested in an ARS pilot project in Iowa, could replace imported rapeseed as the source of erucic acid for plastics, nylon, and high-temperature lubricants.

*T. Austin Campbell, Beltsville, MD
(301) 344-2720*

- Natural fertilizing of soybeans by soil bacteria could be stepped up with genes from rare types of soybeans. Scientists screened 1,300 types of soybean plants and found 13 with genes that develop a symbiotic relationship only with superior strains of nitrogen-fixing bacteria.

*Perry B. Cregan, Beltsville, MD
(301) 344-3070*

- Plant nutrition and stress problems may be sensed from afar with a new remote sensing system that measures the glow of plant leaves exposed to laser beams. ARS cooperated with the National Aeronautics and Space Administration in developing the technology.

*James E. McMurtrey III,
Beltsville, MD
(301) 344-3616*

- New methods of data analysis are helping agricultural scientists learn more from images of the same cropland taken by different satellites. Computer programs recently acquired by ARS now combine such images into a single picture, thus making more kinds of satellite data useful in crop production estimates and other agricultural forecasts.

*John C. Price, Beltsville, MD
(301) 344-2688*

- A hormone in the corn earworm has been isolated that could help control this major insect pest of corn and cotton. The H-AKH hormone regulates essential fats and probably regulates sugars that energize the insect. Scientists will study the hormone's structure to find and clone genes that control its production. Altering these genes would upset the insect's development.

*Howard Jaffe, Beltsville, MD
(301) 344-2474*

- Six-day-old chicks placed on a diet to maintain their weight for the next 6 days and then returned to normal feeding had 25% less abdominal fat at market age (8 weeks) than chicks fed normal diets. They also gained on less feed than chicks not on the diet. A commercial system producing leaner chickens at less cost could save the poultry industry more than \$500 million yearly and provide the consumer with leaner chicken.

*Robert W. Rosebrough,
Beltsville, MD
(301) 344-2866*



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

Russell L. Steere
President

October 1987

The FAR-B Membership Year - V. R. Boswell, Chairman, FAR-B Membership Committee - We may not have made it clear to everyone that the Membership Year of FAR-B is NOT the calendar year but the period April 1 to March 31.

Dues are payable annually.

The 1987 Membership Year is half gone. Distressing numbers of original Personal Memberships and Associate Memberships have not yet been renewed for 1987.

All Patrons have renewed, but as of October only 40 Personal members and 10 Associate members had renewed. FAR-B cannot function as planned unless it has continuing support.

Members (new ones or renewals) who have paid their 1987 dues were listed in the last Newsletter or were later sent an individual acknowledgement by the Membership Committee.

PLEASE, all you good members who are in arrears with your dues for the 1987 Membership Year (April 1, 1987 to March 31, 1988) send your annual dues to FAR-B at P.O. Box 1061, Beltsville, MD 20705, without further delay. As of October 1987, there were about 50 of you, and the support of every one of you is needed and appreciated.

As a reminder, the annual dues for Personal members is \$20 and for Associate Members it is \$10. Unless you pay your dues by December 31, 1987, we will be forced to drop you from the FAR-B roles.

Notes from FAR-B President, Dr. R. L. Steere - I am pleased to note that plans for Symposium XIII are well formulated and that attendance is expected to be good.

We would like to present a special FAR-B Award of Excellence again this year. This is the award we presented to Mary Shorb at the Symposium XII banquet. If anyone wishes to nominate someone, please contact any member of the Board of Directors or Dr. Klassen.

The new Visitors Center at the Log Lodge will be opening soon. Anyone wishing to volunteer services please contact Dr. Klassen or an officer of FAR-B.

Plans are currently being drawn up for improving the circle in front of the Administration Buildings at BARC-W. We hope that FAR-B can help make this area not only more attractive but informative as well. We have suggested that demonstration plots of some BARC research be established in an artistic manner in this space.

Beltsville Symposium XII - George Irving, Chairman, FAR-B Symposia Committee - With the completion last May 7 of the 4-day Beltsville Symposium XII, ARS and FAR-B began to look forward to the "teen" years of the ARS Symposia in Agricultural Research which will begin on May 9, 1988, with the opening sessions of Beltsville Symposium XIII. As indicated in our June Letter, FAR-B participated for the first time in preparations for a Symposium. The Symposia Committee solicited support of the food and agriculture industry and cooperated with the co-chairs Dr. George L. Steffens and Dr. Theron S. Rumsey and their committee of ARS scientists in dealing with various details of the conference.

The subject of Symposium XII, which was keynoted by ARS Administrator Dr. Terry B. Kinney, Jr., was "Biomechanisms Regulating Growth and Development." There were six scientific sessions and more than thirty speakers, including scientists from Israel, England, Japan, and Scotland. Highlights of the Symposium banquet were an address by Dr. Rita R. Colwell, Professor of Microbiology and Vice President for Academic Affairs, University of Maryland, and presentation by FAR-B of a Distinguished Scientist Award to retired microbiologist Dr. Mary S. Shorb in recognition of her pioneering research on vitamin B .

Beltsville Symposium XIII - The First Announcement for Beltsville Symposium XIII is now out. The subject is "Biotic Diversity and Germplasm Preservation--Global Imperatives." There will be five sessions, May 9, 10, and 11, and a banquet May 10. The afternoon of May 11, there will be a tour of BARC, a tour of the U.S. National Arboretum, visits to laboratories, and computer demonstrations. If you want additional information, contact Mrs. J. Weirman, Room 127, Building 001, BARC-W, Beltsville, MD 20705.

Notes from Director of BARC - Dr. W. Klassen - Dr. Thomas J. Sexton, Research Leader, Avian Physiology Laboratory, and Richard F. Wilson of Raleigh, North Carolina, share this year's Distinguished Scientist Award. Dr. Sexton received the award for innovative and creative research on turkey semen that is revolutionizing the turkey industry. Dr. Sexton will be honored in ceremonies in Washington, D.C., on November 3, 1987. He will give a brief presentation in the Patio of the Administration Building.

The new Acting Associate Area Director of BARC, Dr. K. Darwin Murrell, was honored August 25, 1987, by being elected Vice-President of the American Society of Parasitologists for 1988. Dr. Murrell's outstanding research on animal parasites, and particularly trichinosis, at the Animal Parasitology Institute in Beltsville has won him many awards.

The Beltsville Area participated in the City of Greenbelt Labor Day Parade. Dr. Lekh Batra and Mr. Bill Peters were prime movers in getting together a float featuring a sow and eight piglets. The Beltsville team won three awards for the Best Animal Float, the Most Admired Float, and the Most Innovative Float. Senator Sarbanes and Congressman Hoyer were among the many dignitaries that participated in the celebration.

What would you do if someone at your restaurant table choked on food? Dr. Deane Weber was eating at the Domino Restaurant recently when a person sitting at the table with him choked on bread. His quick action and first-aid training in administering the Heimlich maneuver saved the situation. We are all so well aware of the vital necessity of immediate action in such an emergency, so we need not expand on the importance of Dr. Weber's actions in this instance. We hope all of you have information and/or training on this important first-aid procedure. Call Nancy Thrush if you need to know more at 344-3024.

Do You Know Anyone? - FAR-B needs someone who is experienced in operating a word processor and who has access to the equipment needed to update the mailing list at intervals and produce the 150-200 labels needed each quarter to send out the Newsletter. The disc used at present fits a Telex PC, which is IBM compatible; the program is multimate. Of course, it would be nice if that disc could continue to be used, but the alternative, preparing another one, is apparently not a major chore. So, if you could do the work yourself or know anyone who could, please get in touch with Jane Wall, Chairman of the FAR-B Information Committee, at 301-350-3749.

From the July 1987 ARS "Employee Achievements, Honors, and Awards" - Walter Mertz, Director of the Beltsville Human Nutrition Research Center, will receive the International Award for Modern Nutrition for his research on trace elements. The award will be presented in Brig, Switzerland, where Dr. Mertz will give a seminar. Presented annually since 1968 by the Central Association of Swiss Milk Producers, this award has been given to only two other Americans.

President Reagan awarded Theodor O. Diener the National Medal of Science on June 25 for his discovery of viroids, the smallest known agent of infectious diseases of plants, animals, and humans. Dr. Diener (Microbiology and Plant Pathology Lab, Beltsville, MD) won the Wolf Foundation Prize in agriculture for this work in May. The National Medal of Science is the Nation's highest scientific honor and is presented to individuals whose work helps improve America's industrial competitiveness and productivity by strengthening our science and technology base and talent.

Federal Employee Awards - Incentive Awards for Federal Inventors - Cash royalty awards have been granted to the following Beltsville scientists with inventions licensed by the U.S. Department of Commerce. These awards are based on research licensed to private industry for commercial development.

M. Beroza	R. Miller
M. Jacobson	J. Neal
J. Klun	M. Schwartz
B. Leonhardt	T. Sexton
T. McGovern	

Superior Service - The Department's Superior Service Award went to Michael D. Christensen (Beltsville, MD) for outstanding contributions to responsive and efficient personnel management in ARS.

Philip C. Kearney (Beltsville, MD) for outstanding research and world leadership in chemical and biological methods of degrading pesticide wastes that have greatly reduced the environmental impact of pesticide use.

Plaques for ARS Science Hall of Fame honor, first given in 1986 to Edward F. Knippling (Beltsville, MD) will be permanently displayed in the new ARS National Visitor Center, which will open formally in 1988 at the Beltsville Agricultural Research Center. One of seven scientists inducted into the ARS Science Hall of Fame in 1987 was Cecil H. Wadleigh (retired, Beltsville, MD). He elucidated the mechanisms by which crops respond to salinity and water stress and provided the inspired planning and leadership that helped those working with him expand and use the knowledge of soils, water, and air and their interactions with plants.

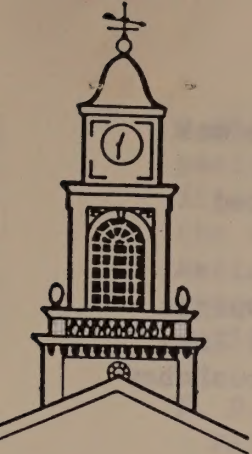
Patricia C. Augustine (Protozoan Diseases Lab) was elected to the University of Maryland National Capital Area Chapter of Gamma Sigma Delta. Gamma Sigma Delta presented its research award for merit to Harry Danforth, who also works at the Protozoan Diseases Lab.

Animal Parasitology Institute Director Ronald Fayer was elected to the 1987 Executive Board of the American Type Culture Collection's Board of Directors.

The National Research Council named Karl H. Norris (Instrumentation Research Lab) to its Board on Agriculture for 1987-89. The Board addresses issues related to plant and animal sciences and renewable resources.

Cathleen Joan Somich (Pesticide Degradation Lab) is the first winner of the American Chemical Society's new Agrochemicals Division Research Award for young scientists. Dr. Somich won the award for her research on the chemistry of alachlor degradation by ultraviolet light and ozone.

Two BARC Scientists will become fellows of the American Phytopathological Society: A. Morgan Golden (Systematic Botany, Mycology, and Nematology Lab) and Roger H. Lawson (Florist and Nursery Crops Lab).



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

December 1987

THE LAST CALL -- If you have not paid your 1987 membership dues, this is the last FAR-B newsletter you will receive. The membership year runs from April 1 to March 31. Personal members pay \$20 per membership year and associate members pay \$10. Make your check out to - Friends of Agricultural Research-Beltsville, Inc., and mail to:

FAR-B
P. O. Box 1061
Beltsville, MD 20705-1061

V. R. Boswell, Membership Chairman

Report from FAR-B's President -- One of FAR-B's major concerns is the development of machinery that might help prevent the sale of BARC land to developers; that is, to restrict its use to the U.S. Government for needed facilities or to preserve it as green space, parkland, etc. It was to express these concerns that FAR-B vice president Jane Wall and I recently met with Parris N. Glendening, County Executive, Prince George's County. Mr. Glendening assured us that he would favor a restriction on future development of parcels of this land and noted that the County had designated the BARC area as "open space". However, he pointed out, the owner of land so identified must initiate or at least agree to a permanent designation of OS at the time of any transfer. He recommended that FAR-B contact Congressman Steny Hoyer, get his advice, and then prepare ourselves with the framework of a bill that would authorize such a permanent designation. In this way we would be prepared to move to accomplish our purpose at an appropriate time.

I am pleased to note that a number of members responded to the plea in our last newsletter and have paid their dues.

Russell L. Steere, President

The Log Lodge and the New Visitor Center -- The Log Lodge, modeled after the lodges in Yellowstone National Park, was built 1933-1937 by Civilian Conservation Corp labor stationed on the then Beltsville Research Farm. (The four C.C.C. camps also cleared and drained land at "the farm", built fences and roads -- including hard-surfacing Powder Mill Road through the farm, and constructed many small sheds and other structures.) Subsequently the camps used the lodge as a recreation center. In 1940, the building was converted to the cafeteria most FAR-B members knew.

Logs for the building were cut by the C.C.C. from the straightest and tallest trees found on the farm, most of them pines. A sawmill was set up at the site, and the logs were cut to length, treated for preservation,

and put in place. The uprights that hold the lodge together are white oak placed in cement so as to provide extra strength and support. Indeed, except for the windows and the two fireplaces, the lodge was constructed entirely of logs.

Famous patrons who dined in the cafeteria include President and Mrs. Dwight D. Eisenhower, Secretary and Mrs. Orville Freeman, Secretary and Mrs. Ezra Benson, Secretary Henry Wallace and, among foreign notables, Nikita Krushchev and his wife Nina.

Conversion of the Log Lodge at the Beltsville Agricultural Center (BARC) into the National ARS Visitor Center is now nearing completion. Meanwhile, the exhibits for the new Center are being designed and prepared for placement in the main hall. The formal opening is expected in the late spring of 1988.

The exhibits will portray the national focus on current ARS research and the promise it holds for agricultural producers and consumers relative to the six objectives of the ARS Program Plan -- Soil and Water Conservation, Plant Production and Protection, Animal Production and Protection, Commodity Conversion and Delivery, Human Nutrition, and Integration of Systems. The exhibits are designed so they can be changed easily to reflect new developments in research technology, research directions, and accomplishments.

The Visitor Center will also house the ARS Science Hall of Fame (the room behind the fireplace to the left as you enter the building), the Scientist of the Year Exhibit, and other displays of this type.

Another feature of the Visitor Center will be an Orientation Room, the area formerly used as the cafeteria dining room, that will accommodate about 60 people. It will be equipped with state-of-the-art audiovisual equipment to serve the needs of the wide array of people that visit the Center. The rooms to the right as you enter the building from the front will be used as office space and workrooms for the staff.

The new Visitor Center constitutes a major expansion of the ARS Visitor Program that until now has basically featured BARC research. However, tours of BARC will continue, and the Visitor Center will serve as the starting and ending points of the tours.

With these changes, the role of the Visitor Center will take on new importance and new direction. The role of FAR-B volunteers will fill will be in part determined by the rate and nature of expansion of the previous program and by the expected increase in the number of visitors.

But one thing is certain. The new facility and the expansion of the Visitor Program will afford opportunities for volunteer contribution that have not existed in the past.

W. J. Wharton, Head, Visitor Center

Beltsville Symposium XIII -- The October newsletter noted that the First Announcement of the Beltsville Symposium XIII (May 9, 10, and 11, 1988) is now out. Responses to date indicate that there is a great deal of interest in the subject matter, "Biotic Diversity and Germplasm Preservation -- Global Imperatives". Registration is expected to exceed 400. FAR-B

members (excluding present ARS employees) are invited and encouraged to participate in this Symposium at a reduced registration fee of \$25. Also, if any members wish to attend the banquet at the Greenbelt Hilton Hotel on the evening of May 10, they may do so. Banquet tickets are \$25 per person. Assistant Secretary Orville Bentley will be the principal speaker at the banquet. For further information contact Mrs. Joanna Wierman, Room 127, Building 001, BARC-West, Beltsville, Md 20705 (telephone 344-3235).

F. D. Longen, Symposium Finance Committee and
FAR-B Treasurer

Comments of the BARC Director --

Phytochrome Story Published. To help celebrate the dedication of the Plant Gene Expression Center at Albany, CA, ARS published a brochure titled: "A Pigment of the Imagination". This 30-page brochure was written by Harold Mcgee. Mcgee reports that what was once suspected by other researchers to be a "pigment of the imagination...was traced down in collaboration among several basic and applied laboratories at the Agricultural Research Center in Beltsville, Maryland. ... Working over a period of three decades, a small group of USDA scientists deduced the existence of a pigment that nearly all plants use to adapt their behavior to light in their environment and then determined its chemical nature and isolated it in a test tube. Phytochrome, as they subsequently named the pigment, acts as a universal regulator in plant life; it senses the quality of the surrounding light and in the process exerts a strong control on such essential activities as seed germination, stem and leaf growth, and reproduction."

The brochure describes the contributions of Wightman Garner, Harry Allard, Harry Borthwick, Marion Parker, Sterling Hendricks, N.J. Scully, Eben H. and Vivian K. Toole, Lewis Flint, E.D. McAllister, Albert Piringer, Warren Butler, Jack Downs, Karl Norris, Harold Siegelman, Hans Mohr and others.

It concludes with the observation that: "The achievement of Bothwick, Hendricks, and their USDA colleagues is exemplary. It demonstrates the value of a broad approach to biological problems that ranges from the whole organism to the molecule; of cooperative efforts among diverse disciplines, basic and applied; of the full and imaginative use of resources and results; of steadfast institutional support. It is a story of American science at its best."

Dickinson Named CEO of National Dairy Herd Improvement Association. Dr. Frank N. Dickinson, who has served as Research Leader of the Animal Improvement Programs Laboratory for the past 15 years will take his new post on March 1, 1988. Dickinson has worked closely with the National Dairy Herd Improvement Program for more than twenty years. The most popular output of the Laboratory has been the semiannual USDA/DHIA Sire Summaries. This effort involves analysis of data from more than 4 million dairy cows in about 60,000 herds throughout the United States. It has resulted in raising the average milk production per cow by more than one thousand pounds per decade.

Evidence Found of Prehistoric Use of BARC Land. An archeological survey of the Metro Storage Yard between Indian Creek and the B&O Railroad has been conducted by Louis Berger & Associates, Inc. Prehistoric cultural material was found to depths ranging up to 2.3 feet below the present ground surface. Preliminary analysis suggests that the site was utilized throughout the Archaic Period (ca. 8000 B.C. to 1000 B.C.) as well as the Early Woodland Period (ca. 1000 B.C. to 500 B.C.). Intact prehistoric features include three fire-cracked rocks and lithic reduction materials including cobbles, hammerstones, and decortication flakes. The Early Archaic is represented by bifurcate-based and other projectile point styles.

Waldemar Klassen

Retrospective Stories -- One of FAR-B's major objectives is the dissemination of information regarding the achievements and resources of the Beltsville Agricultural Research Center. The Board has therefore met on more than one occasion with Steve Berberich, National News Coordinator, Information Staff, ARS, and with other staff members to learn how FAR-B members can best complement the work done by that group. The answer has been categoric ... by producing retrospective stories.

Retrospective stories are the stories behind the announcements of scientific advances, that is, descriptions of earlier research that has culminated in a current benefit to the public or to an industry or that has led to benefits that are perhaps not well known. The Information Staff must spend almost full time reporting on current research. It rarely has time to do a retrospective story. Moreover, the Staff feels that retired scientists are the ideal source of such stories, particularly since the local media are very receptive to these "histories" when they are written by professionals who live in the local communities.

The FAR-B Board therefore asks FAR-B members to think over their own associations with particular scientific investigations at BARC or the association of a colleague and to suggest possible retrospective stories. The Board will also ask members for help in identifying the people who have the information needed to produce a specific retrospective story when such a story would be most useful. And the Information Staff will be delighted to furnish any help requested -- from assistance in writing for popular publication to polishing or editing to appropriate contacts with the local press. It also stands ready to use tips and ideas to develop retrospective stories.

The FAR-B Information Committee would be delighted to help in any way.

Jane D. Wall, Chairman

Awards --

Dr. JOHN L. CREECH, retired Director of the National Arboretum, received the Norman Jay Colman Award (named for the first Secretary of Agriculture) from the American Association of Nurserymen, for research in horticulture. He also received the Gold Medal Award from the Chicago Botanic Garden.

Ms. JANET BARTHLOW, Fruit Laboratory, Horticultural Science Institute, was named Beltsville Area Clerical Employee of the Year by the Federal Women's Program at their annual awards ceremony held on September 15, 1987.

Dr. ALAN K. STONER, Director, Plant Genetics and Germplasm Institute has been recognized for his substantial contribution to horticulture and other plant sciences by being made Fellow of the American Society of Horticultural Science. Dr. Stoner has made significant contributions to the genetics and breeding of disease resistance in tomatoes. Dr. Stoner has devoted an enormous amount of energy to assure the efficient operation of the National Plant Germplasm System. He serves as Executive Secretary to the 33 Crop Advisory Committees. Dr. Stoner's efforts have been instrumental in clearing a large backlog of introduced plant material through quarantine at the U.S. Plant Introduction Station, Glenn Dale, MD.

Dr. LLOYD KNUTSON, Director, Biosystematics and Beneficial Insects Institute, Beltsville Area, and Professor K. C. KIM of Pennsylvania State University were awarded a Certificate of Merit by the Take Pride in America Program. They were nominated by ARS for developing the major national symposium, "Foundations for a National Biological Survey," sponsored by the Association of Systematics Collections. The symposium and published proceedings recognized the contribution of systematics to the improvement of the condition of our natural resources and included specific emphasis on the relationship between agriculture, environmental quality, and biological diversity in the U.S.

Dr. FRANK S. SANTAMOUR, JR., Research Geneticist at the U.S. National Arboretum, was presented the 1987 Award for Arboricultural Research of The International Society of Arboriculture at the Society's 63rd Annual Conference in Keystone, CO, on August 17, 1987. Dr. Santamour was cited by the World's largest arboricultural society for his contributions in developing superior trees and his research on wound response of trees. Also Ms. ELIZABETH MOUNTCASTLE, who is in her second year as a 1040 Biological Technician in Dr. Santamour's laboratory, was named the Thomas V. Marsho Scholar for 1987-88 at the University of Maryland--Baltimore County. This award, which is accompanied by a cash scholarship, is presented annually to the most outstanding student in the Biological Sciences.

Dr. GEORGE L. STEFFENS, Fruit Laboratory, Horticultural Sciences Institute, Beltsville Area, is the 1986-87 Chairman of the Plant Growth Regulator Society of America. He was presented a silver medal by the Japanese Society for the Chemical Regulation of Plants for active leadership in promoting and developing knowledge about natural and synthetic plant growth regulators. The medal was specially designed and presented on the occasion of the first joint meeting of the two societies held in Honolulu, Hawaii, August 3-7, 1987.

At the 11th International Congress of Plant Protection in Manila, Philippines, October 5-6, 1987, the Philippines Secretary of Agriculture, Carlos Dominguez, presented the Medal for Outstanding Achievement in International Plant Protection to Dr. ALEXEJ B. BORKOVEC. Dr. Borkovec has made many contributions in pesticide chemistry and in insect biochemistry and physiology. Dr. Borkovec has been the cooperating scientist on numerous PL-480 projects, and he has trained many scientists from third world countries.

EPA's Research Excellence Award. At the International Conference on Assessment of Crop Loss From Air Pollutants at Raleigh, NC, October 25-29, 1987, the Environmental Protection Agency recognized the excellence of air pollution research conducted at the Beltsville Agricultural Research Center by Dr. HOWARD HEGGESTAD (retired in 1984 but continues to publish one significant paper per year on the effects of drought and ozone stress on soybean yields); Dr. EDWARD LEE who has continued the program that was established some years ago by Dr. Heggstad and Dr. JESSIE BENNETT (who has transferred to the ARS Forage and Range Research Laboratory, Logan UT).

Draper and Scott Receive ASHS Outstanding Fruit Cultivar Award. The Fruit Breeding Work Group of the American Society for Horticultural Science presented the award to ARLEN DRAPER and D. SCOTT (retired) of the Fruit Laboratory. This newly established award, given for the first time, recognizes Draper's contribution to, and role in, the development of the strawberry cultivar, "Earliglow". A significant aspect of this award is that all existing fruit cultivars were eligible for recognition as a most significant improvement in variety development. Clearly, the selection of this cultivar, and the recognition of Drs. Draper and Scott to receive this first award, is testimony of the significant impact that this cultivar has had since its first release.



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

March 1988

COME TO THE ANNUAL MEETING

FAR-B's Annual Meeting will take place March 15 at 1 p.m. in the Bioscience Conference Room (Bldg. 011A). A new director is to be chosen, you'll hear about FAR-B's efforts the past year and hopes for the next year, and you'll have a chance to see and visit with old friends.

AND DON'T FORGET

FAR-B's 1988 Membership Year begins on April 1 and runs through March 31, 1989. This is a reminder that your membership renewals should be paid at the start of the membership year - April 1. We will send out reminder notices at the end of March but you need not wait for a personal reminder. In fact, we can cut down on our postage costs if you send your renewals in as a result of this article. Dues for 1988 remain at \$20 for Personal Members, \$10 for Associate Members (current USDA employees), and \$100 for Patrons. Dues may be sent to FAR-B, Inc., P. O. Box 1061, Beltsville, Maryland 20705.

Several members have already sent in their renewal payments and we thank them for their promptness. FAR-B needs the continued support of all its members and needs to enlist additional new members. We suggest that each of our current members set a goal of trying to enlist one new member during 1988.

Victor R. Boswell
Membership Chairman

THE PRESIDENT'S REPORT--FAR-B has now been functioning for two years and is about to hold its second annual meeting - at 1 p.m., Tuesday, March 15, 1988 in the Bioscience Conference Room. As we prepare for this event, I have to report that membership has not expanded as fast as we had hoped and that lack of funds has so far prevented us from being as useful to the Beltsville area as we had hoped to be by this time. On the plus side, we have been able to give moral, if not material help to the Area Director and have contributed substantially to the preparations for Symposium XIII, which promises to be very well attended. Also, at the Symposium banquet, FAR-B will present two Distinguished Scientist Awards, one to a researcher in the area of biotic diversity and one to a researcher in the area of germplasm preservation.

And, speaking for the FAR-B Board, I take this occasion to thank Dr. Victor R. Boswell for his most valuable contributions to our monthly meetings and for his tremendous efforts as chairman of the FAR-B Membership Committee. We will miss him. Vic's appointment to the Board is running out, and a successor will be voted in at the annual meeting.

UPDATE ON RENAISSANCE 93

Dr. Waldemar Klassen, Director, Beltsville Area, recently provided the FAR-B with a report on the funds now available from Congress for modernization at BARC and the U.S. National Arboretum. They are as follows:

Renaissance 93 (recurring)	\$ 1,000,000
Beltsville Center Renovation (non-recurring)	5,750,000
ARS Headquarters	3,000,000
Soil Conservation Road (FY87 Supplemental)	450,000
Beltsville Area Assessment	1,350,000
TOTAL	\$11,550,000

Thus, in FY88, major construction projects include renovation of buildings 007 (natural resources), 303 (engineering), 204 (abaetoir), and 203 ("boarhouse"), and repair of Soil Conservation Road and of five bridges. Major study and/or design projects include buildings 003 (administration) and 307 (human nutrition), steamlines, and, at the Arboretum, brickyard, roof, and greenhouse electrical system.

COMMENTS BY THE BELTSVILLE AREA DIRECTOR

Dr. T. B. Kinney, Jr., ARS Administrator, in a message December 14, 1987, to all ARS employees, announced that he is retiring. He stated:

It is relatively easy, as one's life and career progresses, to make decisions about challenges to accept, new or different positions to take, when to back up, when to stop, or when to go ahead. A decision about bringing your career to an end is not so easy; in fact, it is difficult. It is done, however, and I am now enthusiastic about all the new and different opportunities and challenges that retirement offers. Carol and I will be working together in a number of ways with people.

During Dr. Kinney's 7-year tenure as Administrator, he has placed strong emphasis on re-thinking the ARS agenda, reducing overhead cost to a minimum, and reprogramming base funds to meet research needs and opportunities of the highest priority.

In developing the FY 1989 budget request, Dr. Kinney requested \$2 million for an ultraclean small animal facility for the Beltsville Human Nutrition Research Center and \$10 million for renovating facilities at the Beltsville Agricultural Research Center and the U.S. National Arboretum. However, these requests were eliminated by the Administration.

Dr. O. G. Bentley, Assistant Secretary for Science and Education, has been conducting a search for a successor to Dr. Kinney. Dr. Kinney has agreed to serve until a successor has been installed.

Beltsville Area Realignment--The Beltsville Area, which includes the Beltsville Agricultural Research Center, has been realigned. The realignment has three major purposes: 1) to allow area management to focus more on scientific program development, modernization of facilities and equipment, effects of urban encroachment, and other major issues, 2) to achieve more coherent program development in regard to the Agency's strategic objectives, and 3) to strengthen administrative services support to Research Leaders and bench scientists.

The realignment has consolidated 10 of the former institutes into the following 4 new Institutes: Natural Resources, Plant Sciences, Livestock and Poultry Sciences, and Product Quality and Development. Four full-time Deputy Area Directors have replaced the previous 10 part-time Institute Directors.

The Beltsville Human Nutrition Research Center and the U.S. National Arboretum have been retained as Institute equivalents. However, the Family Economics Research Group has been added to the Beltsville Human Nutrition Research Center. Essentially all facility support services and management of day-by-day operations have been consolidated under one Assistant Area Director. This realignment preserves intact the Most Efficient Organization that was recently developed through the cost comparison procedures required by OMB Circular A-76.

Currently, the Acting Deputy Area Directors are as follows:

Natural Resources Institute -- Dr. Philip C. Kearney
Plant Sciences Institute -- Dr. James H. Elgin, Jr., with Dr. Julius J. Menn, as Acting Associate Deputy Director
Livestock and Poultry Sciences Institute -- Dr. Thomas J. Sexton
Product Quality and Development Institute -- Dr. Donald D. Bills

The former Institute Directors have been reassigned as follows:

Dr. Alan K. Stoner, Research Leader, Germplasm Services Laboratory
Dr. Lewis W. Smith, National Program Leader (Dairy), National Program Staff
Dr. Miklos Faust, Special Advisory for Horticultural Sciences
Dr. Lloyd V. Knutson, Special Advisory for Biosystematics
Dr. James L. Hilton, Associate Director, South Atlantic Area, Athens, GA
Dr. Ronald Fayer will lead a new thrust on toxoplasmosis

Currently, Ms. Jane Giles is Acting Assistant Area Director. Mr. Ray Rhodes is on extended sick leave.

Dr. W. Klassen

SYMPOSIUM XIII

Beltsville Symposium XIII, Biotic Diversity and Germplasm Preservation -- Global Imperatives, will take place May 9, 10, and 11 at the Beltsville Agricultural Research Center. It is sponsored by the Beltsville Area, Agricultural Research Service, U.S. Department of Agriculture with the cooperation of Friends of Agricultural Research-Beltsville and the assistance of the Committee on Managing Global Genetic Resources, Board on Agriculture, National Research Council.

Recently FAR-B members received the second announcement of the Symposium. In case you failed to notice, FAR-B members, patrons, and sponsors may attend all sessions plus the registration/reception (May 8, from 6 to 8 p.m., in the lobby of the National Agricultural Library) by paying a \$25 registration fee. Your check should be sent promptly to Mrs. J.

Weirman, Room 127, Building 001, BARC-W, Beltsville, MD 20705. Dr. George Irving, FAR-B patron, will be the moderator of the first session. The banquet will be held May 10 at the Greenbelt Hilton, 6 to 10 p.m. The charge is \$25 per person. This check, too, should be sent immediately to Mrs. Weirman. The speaker at the banquet will be Orville G. Bentley, Assistant Secretary, Science and Education, USDA. During the evening, FAR-B President, Russell L. Steere, will present FAR-B's Outstanding Scientist Award to two Beltsville scientists involved in research relating to the Symposium subject.

AWARDS

Dr. T. B. Kinney, Jr., ARS Administrator, recently announced that the Research Associate proposal identified to receive the 1988 T. W. Edminster Award was submitted by Dr. Lawrence A. Johnson of Beltsville and titled, "Isolation of Sex-Specific Membrane Protein in X- or Y-Bearing Sperm for Use in Developing Monoclonal Antibodies to Sex Livestock Semen". He congratulated Dr. Johnson and his research unit which, in recognition, will receive, in addition to the \$40,000 for the first year of the Associateship, salary funds for the selected Research Associate for the second year of the Associateship.

The U.S. National Arboretum received the 1987 President's Award and plaque by the Professional Grounds Management Society. Mr. Jeffrey A. Bourne, current president of the Society, made the presentation at the awards banquet on November 11, 1987, at the Hyatt Regency in Crystal City. The Society was a founding sponsor of the "Plant a Living Legacy Program" honoring the Bicentennial.

Dr. Robin Huettel, Research Leader of the Nematology Laboratory, was elected President of the Helminthological Society of Washington for 1988.

Dr. Sueo (Steve) Nakahara, Research Entomologist with the Systematic Entomology Laboratory, BBII, was honored at the national meeting of the Entomological Society of America (ESA) in Boston on November 30, 1987. He received the ESA Distinguished Achievement Award in Regulatory Entomology which is sponsored by the American Association of Nurserymen. The award was given for his exemplary research and service achievements in the taxonomy of thrips, whiteflies, scale insects, and other insect pests with emphasis on solving regulatory problems. Mr. Nakahara was selected from the approximately 9,000 members of the Society.

Dr. Stephen R. Heller, Research Leader for the Model and Database Coordination Laboratory, was elected to the position of Counsellor of the American Chemical Society (ACS) Computer (COMP) Division for the period 1988-1989. Dr. Heller was also reappointed as Chairman of the Nomination Committee for the ACS COMP Division. In the international field, Heller is the Secretary and Coordinator for the International Union of Pure and Applied Chemistry (IUPAC) Committee on Chemical Databases for the period 1985-1989. Heller was appointed to two additional journal editorial boards this year, "Chemistry International" and "Science Software."

- An exceptional new strawberry, Lester, is now available to the home gardener. Very productive and resistant to root rot, Lester ripens earlier, is more attractive, and has a skin less susceptible to shipping damage than other midseason varieties, making it more marketable. It is sweet with a good aroma. Resistant to leaf diseases and fruit rots, this strawberry is best adapted to the Mid-Atlantic area but has been grown from New England south to North Carolina and from Maryland west to Illinois.

Gene L. Galletta, Beltsville, MD
(301) 344-4652

- The first Russet potato with resistance to the golden nematode, a potentially serious pest of potatoes worldwide, has been bred in an ARS lab. For 40 years, agricultural officials have recognized the golden nematode as a threat to U.S. potato crops and contained it—with quarantines, local controls, and inspections—to parts of New York, where it was first found in this country. Called NemaRus, the new potato can be grown for high yields in Northeastern States and Florida and in Mid-Atlantic States under irrigation. It is also resistant to widespread virus diseases and to fusarium tuber rot, a serious disease of stored potatoes.

Raymon E. Webb, Beltsville, MD
(301) 344-3380

- Four colorful new crape myrtles resistant to powdery mildew disease have been released by ARS ornamental breeders to cooperating wholesale nurseries. All the new crape myrtles are semidwarfs, with colors ranging from white to medium pink and lavender. They are unusually cold-hardy. The frequent spraying necessary to control the disease is impractical for home gardeners. The new cultivars are Acoma, Hopi, Pecos and Zuni.

Donald R. Egolf, Washington, DC
(202) 475-4862

- Pesticides in agricultural runoff flowing through tidal marshes may be trapped and broken down in marsh sediment before they can pollute the Chesapeake Bay. Working in a micro-ecosystem designed to trace and measure vertical and horizontal movement of pesticides, scientists found that isotope-labeled atrazine was chemically inactivated and tightly bound to organic matter in marsh sediment. It had been assumed, but not scientifically confirmed, that pesticides could build up to levels injurious to life in tidal marsh ecosystems. This experiment suggests that marshes have a natural filtering system that prevents such buildup.

Allan R. Isensee, Beltsville, MD
(301) 344-3297

- Lichens—small plants composed of fungi and algae—may be an index of air quality. Scientists from ARS, Tel Aviv University, and Israel's Volcani Center discovered that tree lichens transplanted from a rural area to a smoggy city produced less of one hormone (indole-3-acetic acid) and 50% more of another (ethylene). Further research may lead to using lichens in monitoring air pollution. Scientists also want to know more about how lichens may affect trees, for example, by releasing hormones that stimulate tree growth.

Jerry D. Cohen, Beltsville, MD
(301) 344-3632

- Picking the gypsy moth's brain revealed a scientific first—a hormone that controls growth and molting in this pest. The hormone, PTTH, could lead to a safer insecticide—perhaps through genetic engineering—that would affect only the gypsy moth. The pest causes millions of dollars in damage to the Nation's forests and shade trees each year. Isolating this hormone may lead to controlling the pest by genetic engineering.

Edward P. Masler, (301) 344-1732/
Thomas J. Kelly, (301) 344-1787
Beltsville, MD

- To transfer biocontrol technology, ARS scientists worked with Maryland officials to use European weevils to attack pesky *Carduus* thistles, also from Europe. The weevil can be used in many States to eat seeds of the thistles in pastures and highway plantings. In a 4-year cooperative study, the imported weevils controlled up to 95% of thistles at highway test sites in Maryland. The State's transportation department spends more than \$200,000 a year to control the thistle with mowing and herbicides.

John J. Drea, Beltsville, MD
(301) 344-1791

- Eighty new strains of *Bacillus thuringiensis* (BT) have been discovered by a new isolating method that is both simple and rapid. The bacteria are now marketed in products that control certain crop-eating caterpillars, but scientists worldwide want to increase the number of pests that BT could control. The method is a long-sought breakthrough to distinguish among closely related strains of the bacteria and thus opens the way to possible farm and garden use of BT for control of many more insect pests.

Russell Travers, Beltsville, MD
(301) 344-4331

- An overlooked mite—too big for the microscope but too small to be seen with the naked eye—was found to cause leaf yellowing of zoysia, a popular lawn grass from the Orient. Scientists had thought that a virus was the culprit until they discovered the tiny, submarine-shaped mite (*Eriophyes zoysiae*) on and inside zoysia grass blades, sucking up the plant's juices. Now that they know what to look for, researchers can work with only mite-free plants in developing economical zoysia seed for lawns and ballfields. Most homeowners today plant zoysia in plugs, bits of sod that spread to make a rugged, drought-tolerant lawn.

Nichole O'Neill, Beltsville, MD
(301) 344-3331



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

September/October 1988

POST OFFICE BOX 1061

In the past few months there have been two occasions (that we are aware of) when the Beltsville Post Office inadvertently returned mail addressed to FAR-B. In each instance a postal clerk had indicated on the returned correspondence that our Post Office Box had been closed out. Fortunately, we were able to clear up the matter with the correspondents. If any member has had any correspondence returned, please let us know and be assured that our Post Office Box 1061 is active. The Postmaster has apologized for the errors and for any inconvenience they caused us.

PRESIDENT'S REPORT

At long last, FAR-B is here with another newsletter. Please excuse the delay. These months have been busy for FAR-B and for BARC, and the long hot summer didn't help. Now that cool weather is with us again, we've found the time and the energy to make a report. The problem is how to cover all that's been going on.

Well, to start off, FAR-B's Annual Meeting was held March 15 in the Conference Room of Building 011A. The Committee Chairmen made their reports. There was a discussion about who should receive FAR-B's Distinguished Scientist Award at the Symposium Banquet, and it was decided that there should be two awards; one for basic research and one for applied research. Also, it was announced that Dr. Victor Boswell, whose term as FAR-B Director had expired, did not wish to be considered for a second term for personal reasons. (We will miss his friendly smile and helpful suggestions at Board Meetings.) Dr. A. A. Piringer was therefore nominated and elected as a Director to replace Dr. Boswell. Finally, Dr. Waldy Klassen discussed the reorganization at BARC. We know that those of you not in attendance at the Annual Meeting will want to hear about this, and we plan to explain the rather extensive details in a future newsletter.

Then May 9-11 there was Symposium XIII, Biotic Diversity and Germplasm Preservation, sponsored by BARC with the cooperation of FAR-B and the Committee on Managing Global Resources, Board on Agriculture, National Research Council. Dr. George Irving, who with Dr. Ted Byerly, was FAR-B's co-chairman of FAR-B's Symposium and Industrial Relations Committee, and Dr. Allan Stoner, who with Dr. Lloyd Knutson, were BARC's co-chairmen for Planning and Arrangements, comment on FAR-B's role regarding the Symposium elsewhere in this newsletter. At the Symposium Banquet which was attended by some 300 persons, FAR-B presented two Distinguished Scientist Awards to BARC researchers--Dr. Edward W. Baker and Dr. John G. Moseman. Their contributions are described immediately following this report.

Next, in June, Dr. R. Dean Plowman became Administrator of ARS, replacing Dr. Terry B. Kinney who retired. And in July, Dr. Edward B. Knipling was designated Director of BARC and Dr. Klassen replaced him as Associate Deputy Administrator on the National Program Staff. Dr. Knipling introduces himself to FAR-B members in the Director's Notes in this newsletter.

And now, as I said, it's fall and cool, and preparations for Symposium XIV are underway. Dr. Donald L. Keister, chairman, reported on progress at the FAR-B Board Meeting September 13. He has also provided a brief note on the program for this newsletter and hopes to have announcement one ready for mailing very soon.

Which takes care of the past and the present. Now for the future. I call to your attention the fact that at the next annual meeting (March 1989), FAR-B must elect officers and one director. Anyone who is willing to contribute to FAR-B by volunteering for one of these tasks should contact the newly designated chairman of the Nominating Committee, Dr. A. A. Piringer, 4409 Beechwood Road, University Park, MD 20782, or (301)864-2409.

Russell L. Steere

FAR-B'S 1988 DISTINGUISHED SCIENTISTS

EDWARD BAKER: Dr. Edward W. Baker retired in 1987 after 47 years with the Systematic Entomology Laboratory. He continues to pursue an active research program at Beltsville on the systematics of mites.

His research has been at the forefront of basic and applied studies on the biotic diversity of mites. Through his efforts, the first comprehensive classification system of mites was developed. Due to his intensive work on plant-feeding spider mites, the important pest species are now well known. He has published more than 140 research papers and books and has described over 700 species of mites previously unknown to science. His research serves as the basis of nearly all programs dealing with the control, quarantine, and study of behavior and ecology of mites in United States crop systems.

Dr. Baker has been a leader in international congresses of acarology, an organizer and teacher in the long-term Institute of Acarology, and has been invited by international organizations to establish acarology programs in five foreign countries. His several textbooks serve as the basis of acarology curricula throughout the world.

JOHN G. MOSEMAN: Dr. John G. Moseman spent his 36 year career with the USDA conducting basic research on host-parasite interactions and applying the findings to barley cultivar and barley germplasm improvement. His research resulted in the identification of genes in barley germplasm for resistance to powdery mildew, stripe rust, leaf rust, stem rust and loose smut. The genes identified have been or are being used by scientists around the world to develop disease resistant barley cultivars. Another of Dr. Moseman's important contributions was the discovery that genes identified for resistance in barley germplasm relate directly to corresponding genes for virulence in the fungus causing powdery mildew.

During his career, Dr. Moseman presented his research findings at international scientific meetings; coordinated international, national and regional uniform barley and wheat disease nurseries; served on national and international committees; and served as sponsoring scientist on several binational and PL 480 science projects.

Dr. Moseman served as ARS Barley Investigations Leader and Chairman, Plant Genetics and Germplasm Institute, BARC. In the latter capacity he was responsible over a period of 8 years for coordinating the research of approximately 70 scientists involved in research in most plant science disciplines to improve the quality and productivity of agronomic and horticultural crops.

DIRECTOR'S NOTES

In my new role as Director of BARC, it is a pleasure to have this first opportunity to provide the FAR-B membership with an update on Agency events and special BARC activities.

In June, as Dr. Steere has noted, Dr. R. Dean Plowman was appointed ARS Administrator following the retirement of Dr. Terry B. Kinney. Dr. Plowman returns to ARS after serving 4 years as Chairman of the Animal Sciences Department at Utah State University. Formerly, Dr. Plowman served as an ARS Area Director at Logan, Utah (1972-1984) and, prior to 1972, he was Chief of the Dairy Branch, Beltsville. This prior service at Beltsville obviously provides him with the background necessary for understanding and appreciating the special needs at BARC as we prepare to move into the 21st Century. Indeed, Dr. Plowman has already shown a keen interest in issues related to BARC. In communications to all ARS employees, Dr. Plowman pledged to maintain ARS' strong national and international leadership in agricultural research. He will seek improvements in program direction, management efficiencies, and internal operating procedures, but he envisions no need for any major reorganization of ARS.

As Director of the Beltsville Area, I support these same policies. Facility modernization and effective land use in support of our research are, without question, among the major challenges facing BARC in the near future. Assisting me to achieve these goals is a very capable management team that has now been officially put in place following the internal realignment of BARC announced last March. This team consists of:

K. D. Murrell, Associate Director
Jane Giles, Deputy Area Director, Facilities Management and Operations Division
P. C. Kearney, Deputy Area Director, Natural Resources Institute
J. H. Elgin, Deputy Area Director, Plant Sciences Institute
T. J. Sexton, Deputy Area Director, Livestock and Poultry Sciences Institute
D. D. Bills, Deputy Area Director, Product Quality and Development Institute
W. Mertz, Director, Beltsville Human Nutrition Research Center
H. M. Cathey, Director, U.S. National Arboretum

At this time, we do not yet know the outcome of Congressional conferee action on the ARS FY '89 budget. However, both the House and Senate seem to support a combination of modest across-the-board cost reductions and earmarked program increases for BARC. The increases may include some emphasis on environmental quality and food safety research. Also, there is a potential provision for as much as \$18 million to support the ongoing facility renovation at BARC and the U.S. National Arboretum. With such a sum added to the approximately \$20 million expended in the last 3 years for facility modernization, we will start to make tangible progress in our tremendous modernization task, which is conservatively projected to cost a total of \$160 million over a 10-year period.

In future newsletters I will keep you FAR-B members advised of facility and program developments at BARC. In the meantime, I want to convey to all of you my genuine enthusiasm for BARC and its future.

E. B. Knipling

UPDATE ON MEMBERSHIP

MEMBERSHIP RENEWALS

The majority of our members have renewed their membership for the current membership year which, as you know, runs from April 1, 1988 through March 31, 1989. We thank those members for their continued support. Renewals from only about 20 members are unaccounted for. Reminder notices were sent out some time ago. If you are in this group, we would welcome your continued support.

Frank Longen, Treasurer

NEW MEMBERS IN 1988

We welcome the following members of FAR-B who joined our ranks during the current membership year. We are especially pleased that our membership includes an increasing number of representatives of industry.

Sustaining Members

Dr. Jeffrey R. Beard, Pioneer Hi-Bred International, Inc., Johnston, Iowa

Patrons

Dr. L. T. Hargett, Sandoz Crop Protection Corporation, Des Plaines, Illinois
Dr. J. F. Walter, W. R. Grace & Company, Columbia, Maryland

Personal Members

Dr. Max Chambers, Preston, Maryland
Dr. Robert P. Kahn, Rockville, Maryland
Dr. Bernard LaSalle, College Park, Maryland
Dr. James B. Ryan, Rohm & Haas Company, Spring House, Pennsylvania
Dr. James P. SanAntonio, Bowie, Maryland
Dr. George J. Santini, Rhone-Polenc Ag Co., Research Triangle Park, NC
Dr. S. Bryan Thomas, Rhone-Polenc Ag Co., Research Triangle Park, NC
Dr. G. P. Volpp, FMC Corporation, Princeton, New Jersey
Dr. Robert H. Whitlock, School of Veterinary Medicine, University of Pennsylvania, Kennett Square, Pennsylvania
Dr. Robert G. Zimbleman, Rockville, Maryland

Associate Members

Dr. Alan E. Fusonie, National Agricultural Library, Beltsville, MD

WITH GREAT REGRET

We regret that four FAR-B members have passed away in recent months: Ralson R. (Ray) Rhodes, former Assistant Director, BARC, who retired in March and died suddenly in July; Charles R. Parencia, Jr., who worked for many years in the former Entomology Research Division at Beltsville and later transferred to the Cotton Physiology Laboratory in Stoneville, Miss.; Neil W. Stuart, a distinguished horticulturist who worked for many years in the former Crops Research Division of ARS and who in recent years has been retired in Chattanooga, Tenn.; and John S. Andrews, a noted parasitologist who was associated with the former Animal Disease and Parasite Research Division of ARS in Beltsville. We extend our deepest sympathy to the families of these FAR-B members. They will be missed.

AWARDS TO BARC SCIENTISTS

Dr. Alky E. Watada, Research Leader, Horticultural Crops Quality Laboratory
-Fellow, American Society for Horticultural Science

Dr. Henry M. Cathey, Director, U.S. National Arboretum
-Honorary Member of the Year, Garden Writers of America

Dr. Edward B. Knipling, Director, Beltsville Agricultural Research Center
-1988 Presidential Rank Award for Meritorious Service

Dr. Anthony W. Kotula, Research Leader, Meat Science Laboratory
-The Meat Research Award, The American Society of Animal Science

Dr. Raymon E. Webb, Research Leader, Vegetable Laboratory
-Distinguished Service Award of the Potomac Division, American Phytopathological Society

Dr. Kevin J. Hackett, Insect Pathology Laboratory
-Derrick Edward Award, International Organization for Mycoplasmaology

Dr. Bradford Berry, Meat Science Research Laboratory and
Dr. J. P. Dubey, Zoonotic Disease Laboratory
-Research Awards, Local Chapter of Gamma Sigma Delta, the Honor Society of Agriculture

Mr. Jack R. Coulson, Beneficial Insects Laboratory
-Four-year term as President of the Global Body of the International Organization for Biological Control

Dr. J. Lydon, Weed Science Laboratory
-Co-recipient of the Outstanding Weed Technology Award, the Weed Science Society of America

Dr. Walter Mertz, Director, Beltsville Human Nutrition Research Center
-Distinguished award, 1988 Department Honor Award

BARC Health and Fitness Center
-Director's Award and Citation for Finalists, Office of Personnel Management

NOVEMBER AWARDS CEREMONY

The ceremony honoring the 1988 Scientists of the Year--A distinguished scientist and outstanding scientists--will be held the afternoon of November 15 (exact times to be announced) in the Log Lodge Visitors Center. FAR-B members will be interested in the fact that George C. Papavizas of BARC will receive an award for major breakthroughs in biological control of the most damaging seedling diseases of field and horticultural crops through research and technology transfer.

BARC Director Dr. Knipling encourages FAR-B members to attend and will advise FAR-B board members of the exact time. Call any Board member to get that information.

BELTSVILLE SYMPOSIUM XIII

Symposium XIII, Biotic Diversity and Germplasm Preservation--Global Imperatives, lived up fully to expectations. The 3-day program consisted of 27 invited papers, 5 presented by foreign scientists; a dozen computer demonstrations; and more than three dozen poster presentations. The approximately 300 attendees included scientists from Beltsville and other ARS locations, students and faculty members from colleges and universities, scientists from private companies and organizations, personnel from other government departments and agencies, and scientists from 14 foreign countries.

FAR-B's participation in the planning included membership on the Program, Finance, and Publicity Committees (Dr. Irving, Dr. Byerly, and Jane Wall); delineation of the issues at the opening session by Dr. Irving, the moderator; and presentation of FAR-B's Distinguished Scientists Awards by Dr. Steere at the banquet on May 10 at the Greenbelt Hilton Hotel.

The Symposium banquet was attended by about 300 persons including Dr. R. D. Plowman, then the Administrator Designate of ARS, several members of FAR-B, and a number of distinguished guests. The address was delivered by Dr. Orville G. Bentley, Assistant Secretary for Science and Education, USDA, who applauded the research attention being given to the matter of the preservation and use of our precious germplasm resources.

Published proceedings of Symposium XIII will become available soon.

George Irving, FAR-B Director, and
Allan Stoner, Co-Chairman,
Symposium XIII

BELTSVILLE SYMPOSIUM XIV

The topic of Beltsville Symposium XIV is "The Rhizosphere and Plant Growth". The dates are May 8-11, 1989. As in the past, the symposium will include invited lectures and contributed posters. It will be co-sponsored by BARC and FAR-B.

The reasoning behind the selection of the topic is as follows: Plant growth and development are controlled largely by the soil environment in the root region (rhizosphere) of the plant. This environment is very complex since the inorganic soil, the microflora of the soil, and the plant root all interact. In the past, agricultural researchers have treated the rhizosphere as a "black box" since studies of this environment are difficult. However, current advances in plant and microbial molecular biology suggest the possibility of designing specific plant-microbe associations to combat disease and enhance nitrogen fixation; and cost-effective systems of this type might lessen the need for agricultural chemicals and reduce environmental contamination. Thus Symposium XIV will define the present state of rhizosphere research, emphasize current problems, explore potential solutions, and describe the potential for modern biotechnical applications.

Donald L. Keister, Chairman, Symposium XIV



Dr. Essex E. Finney, Jr.
11206 Chantilly Lane
Mitchellville, MD 20716

FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

December 1988/January 1989

FAR-B MEMBERSHIP DUES

A small number of Personal Members and Associate Members still have not renewed their membership for 1988. Naturally, we do not wish to lose any members. However, unless renewals are received by the end of December (or shortly thereafter), we will be forced to remove these members from our active roster. Reminder notices have been sent out on two occasions since the start of the 1988 Membership Year on April 1. If you still have your Reminder Notice and have just overlooked submitting your dues, please do so to avoid having your membership lapse.

PRESIDENT'S REPORT

The November meeting of the FAR-B Board of Directors took place in the Lincoln Room of the National Agricultural Visitors' Center (Log Lodge to us old-timers) so FAR-B members could attend The Scientists of the Year Awards Ceremony which was to take place that afternoon in the Center's auditorium. Dr. R. Dean Plowman, ARS Administrator, was able to meet briefly with the Board prior to the ceremony. He took the opportunity to assure us that he hopes to maintain BARC as a center of excellence in agricultural research with world-wide renown. You will find a message from him to all FAR-B members later in this Newsletter.

At the Awards Ceremony, Dr. George C. Papavizas of Beltsville was among those honored. He received an Outstanding Scientist award for major breakthroughs in biological control of the most damaging seedling diseases of field and horticultural crops through research and technology. Others receiving the Outstanding Scientist award were Kay H. Asay of Logan, Utah, and Herbert Oberlander of Gainesville, Florida. The Distinguished Scientist award was presented to Dr. Janice M. Miller of the National Animal Disease Laboratory in Ames, Iowa.

Plan now to attend FAR-B's annual meeting in March 1989. We'll inform you of the time and place in our next communication. All of us wish each of you a happy and prosperous 1989.

Russell L. Steere

PROGRESS ON BELTSVILLE SYMPOSIUM XIV "THE RHIZOSPHERE AND PLANT GROWTH

Invitations were issued to 35 speakers, and all have accepted. The first announcement was mailed in late October, and many requests for registration materials have already been received. This promises to be a popular symposium. Expansion of the Beltway Holiday Inn with new conference facilities and additional rooms offers the possibility for having a "headquarters" hotel, and negotiations are in progress to have poster sessions and social events at the Holiday Inn. The auditorium in Building 003 at BARC will continue to be the site for the lectures.

Donald L. Keister, Chairman

DIRECTOR'S NOTES

Since I reported to you in the last Newsletter, ARS has received Congressional and Presidential approval for the fiscal year 1989 budget. I am pleased to report that overall ARS increases totaled \$22.7 million, of which \$7.2 million will be allocated to the Beltsville Area.

Specific appropriation-level increases for Beltsville are \$250,000 for groundwater quality research, \$300,000 for climate stress research, \$450,000 for zoonotic diseases/food safety research, \$300,000 for remote sensing research, \$5.1 million for BARC facility modernization and security, and \$750,000 for facility upgrading at the National Arboretum. These new resources will contribute significantly to our ambitious program-strengthening and facility improvement plans.

To assist BARC in our facility modernization planning a major contract (\$1 million) was initiated in November with an engineering consulting firm. The study team is currently on-site at BARC and is actively consulting with Center and Laboratory Leaders to relate future facility needs to future programs. The consultant study, expected to last about 18 months, will advise BARC management on issues such as new program/facility linkages, cost effectiveness of renovation vs. new construction, and optimum sequencing of facility renovation projects.

The FY '89 budget increase for climate stress research relates to agricultural impacts of global climate change, including stratospheric ozone depletion, enhanced ultraviolet radiation levels, and enhanced carbon dioxide concentrations. These new fund resources will be allocated to the Plant Stress Laboratory which is undergoing some internal reorganization accompanied by a new program focus on the global climate change issues.

In closing, I extend best wishes for a Happy New Year to all FAR-B members.

E. B. Knipling

FROM THE ARS ADMINISTRATOR

As the new Administrator of ARS, I am pleased to have this opportunity to contribute to your FAR-B Newsletter.

First of all, I want to say how pleased I am that there is such an organization as FAR-B. It is commendable that you have joined together for the purpose of promoting agricultural research and the Beltsville Agricultural Research Center. I fully support your goals and objectives. Of significant note is your joint sponsorship of the Beltsville symposium series. They have been effective in highlighting important issues relative to agricultural technologies. We are pleased to be a partner with you in this activity.

At a recent meeting of your Board of Directors, Dr. Ted Byerly asked me to share my thoughts regarding the future of Beltsville. While I cannot guarantee what will happen, I can tell you of my intentions.

It is true that Beltsville is only one of approximately 120 locations that house ARS scientists. It is also true that Beltsville has a unique place

among all of these locations. It is the single largest agricultural research center in the world. It employs 400 full-time permanent research scientists, 70 temporary post-doc scientists, and hundreds of technicians, secretaries, administrative personnel, etc., for a total of 1400 persons. It has the largest budget of all ARS locations, and the research program encompasses all of the major objectives of the Agency. It is also located near the Nation's Capital and is in full view of the public, Congress, the international community, etc.

Having spent the first 16 years of my career at Beltsville, I have some first-hand experience with the Center and knowledge of the special role it plays in agricultural research.

I look to Beltsville to be a pacemaker and show-place for ARS. It should be the premier place for USDA's research program. BARC is widely recognized as a first-rate, top quality research organization. People around the world equate ARS with Beltsville. It is a place where people want to come to see what's going on. We can only maintain the outstanding reputation we already have if we maintain BARC's viability and see to it that it has the opportunity to live up to its potential.

From a program perspective, our traditional research on crop and livestock productivity remains important. Increasingly, however, we must direct our attention to the "issues of the day" that affect not only the agricultural sector, but also the entire consuming public. Issues such as environmental quality, food safety, quality, and nutrition, and new and improved technologies to market agricultural commodities are among the important challenges facing BARC and other research programs.

One of the most important agendas for Beltsville in the near term is follow-through on its ambitious facility modernization program to prepare and enable us to maintain our viability and world-wide image. Important progress is now being made, but much remains to be done.

I look forward to continued contacts with FAR-B members and participation in programs where you can help achieve BARC goals. As we enter the New Year, I take this opportunity to wish FAR-B continued success.

R. Dean Plowman

DETAILS ON BARC REORGANIZATION

In the last FAR-B Newsletter, Dr. Steere noted that the reorganization at Beltsville, announced in March, would be explained in a future newsletter. Also, BARC Director Edward B. Knipling identified the new Management Team that assists him in dealing with the major challenges facing BARC in the near future - "Facility modernization and effective land use in support of BARC research". In case you've forgotten, this team consists of K. D. Murrell, Associate Director; the four program Deputy Area Directors - P. C. Kearney, Natural Resources Institute, J. H. Elgin, Plant Sciences Institute, T. J. Sexton, Livestock and Poultry Sciences Institute, D. D. Brills, Product Quality and Development; and W. Mertz, Director, Beltsville Human Nutrition Research Center, and H. M. Cathey, Director, U. S. National Arboretum. In addition,

there is a Deputy Area Director for Facilities Management and Operations, a position currently vacant but occupied on an Acting basis by Jack Boyett. Here then are some details.

The purposes of the realignment at BARC were stated as follows: to "(1) strengthen the capacity of theManagement Team to direct BARC's research programs to the Nation's highest priority agricultural problems in order to assure a strongly competitive agricultural industry, (2) assure coherent research programs and modern equipment and facilities, and (3) provide more effective administrative services support to Research Leaders and bench scientists."

Thus the realignments (1) "consolidate the 10 previously existing Institutes into four new Institutes that correspond to the strategic objectives of the ARS Program Plan(2) replace 10 part-time Institute Directors (half administration/half research) with four full-time Deputy Area Directors with program management responsibilities who lead the Institutes; (3) consolidate responsibility for operations and facility service....; and (4) strengthen and extend Area administrative office support....in order to (a) relieve Research Leaders of paperwork and to provide more effective and timely support, and (b) improve program and financial accountability."

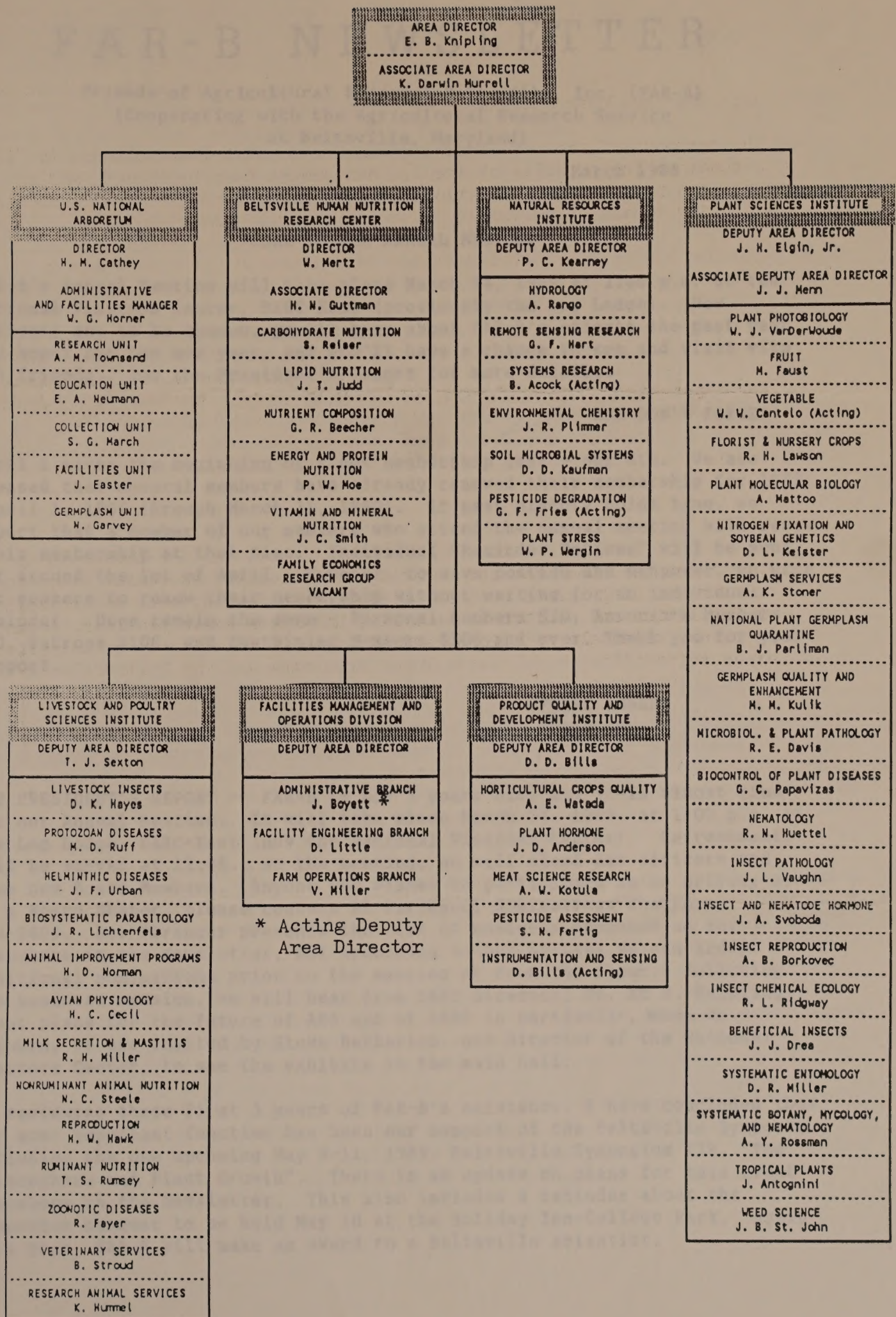
To achieve these ends, the realignment.... provide(s) the Area with a Management Team that has the capacity to(give) increased attention to over-reaching issues such as broad program development, modernization of facilities and equipment, security, hazardous waste problems, technology transfer, clientele relations, and adjustments relating to urbanization of areas surrounding the U. S. National Arboretum and the Beltsville Agricultural Research Center.

Under the new structure, the U. S. National Arboretum and the Beltsville Human Nutrition Center continue their status as Institute equivalents, and the Research Leader for the Family Economics Research Group reports to the Director of the Beltsville Human Nutrition Research Center.

The new structure of the Beltsville Area, Agricultural Research Service, USDA, is shown in detail on the attached organization chart.

DETAILS ON BARC REORGANIZATION

In the last PAR-B Newsletter, Dr. Steere noted that the reorganization at Beltsville, announced in March, would be explained in a future newsletter. Also, BARC Director Edward B. Knapik identified the new Management Team that assists him in dealing with the major challenges facing BARC in the near future - "Facility modernization and effective land use in support of BARC research". In case you've forgotten, this team consists of K. G. Shurell, Associate Director; the four program Deputy Area Directors - R. E. Kearney, Natural Resources Institute, J. H. Eskin, Plant Sciences Institute, T. J. Saxton, Livestock and Poultry Sciences Institute, D. D. Bellis, Product Quality and Development; and W. Martin, Director, Beltsville Human Nutrition Research Center, and H. M. Cathey, Director, U. S. National Arboretum. In addition,





FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

March 1989

COME TO THE ANNUAL MEETING

FAR-B's Annual Meeting will take place March 14, 1989 at 1:00 p.m. at the National Visitors Center, BARC-East (previously the Log Lodge). New officers are to be chosen, you'll hear about FAR-B's efforts the past year and hopes for the new year, and you'll have a chance to see and visit with old friends. See the President's Report for more details.

AND DON'T FORGET

April 1 marks the beginning of a new membership year - our 4th. We are pleased that several members have already renewed their membership for 1989 (April 1, 1989 through March 31, 1990). If past history holds true, we expect that a number of our members who attend the annual meeting will renew their membership at that time. Individual "Reminder Notices" will be sent out around the 1st of April. However, to save postage and manpower, we urge our members to renew their membership without waiting for an individual reminder. Dues remain the same - Personal Members \$20, Associate Members \$10, Patrons \$100, and Sustaining Members \$500 and over. Thank you for your support.

FRANK LONGEN
Treasurer

THE PRESIDENT'S REPORT -- FAR-B is now 3 years old, and it is almost time for our Annual Meeting. It will take place March 14, 1989, at 1:00 p.m. at the Log Lodge, BARC-East (now the National Visitors Center). Refreshments will be served at 12:45. At the meeting, we will elect new officers and some new Board Members. Anyone who wishes to participate as an officer or as a Board Member, please contact Al Piringer, Nominations Chairman, 864-2409. Dr. Piringer presents the list of nominees proposed so far elsewhere in the Newsletter, but according to our By-Laws we can accept additional nominations prior to the meeting or from the floor. Following the business session, we will hear from BARC Director, Dr. Ed B. Knipling about plans for the future of ARS and of BARC in particular. When we adjourn, we are invited by Steve Berberich, new Director of the National Visitors Center, to see the exhibits in the main hall.

In reviewing these first 3 years of FAR-B's existence, I have concluded that our most important function has been our support of the Beltsville Symposia including the one upcoming May 8-11, 1989, Beltsville Symposium XIV, "The Rhizosphere and Plant Growth". There is an update on plans for this event elsewhere in the Newsletter. This also includes a reminder about the Symposium banquet to be held May 10 at the Holiday Inn-College Park. Again this year, FAR-B will make an award to a Beltsville scientist.

Finally, I want to alert you to another very special event - the dedication of the completely renovated Building 006. The FAR-B Board has agreed to provide and serve the refreshments at the Open House that is to be part of the occasion. See the special article on the next page. We would appreciate the help of any of you who can assist. If you'd be willing to lend a hand, please call Dr. A. A. Piringier, 864-2409.

So this is the end of my final report to FAR-B Members. It has been a pleasure to serve you as your president for the past 3 years. I wish the new president an equally enjoyable time.

R. L. STEERE
President 1986-1989

NOMINATIONS FOR FAR-B BOARD--So far the following persons have been nominated to fill Officer and Board positions for the next 3 years. The election will take place at the Annual Meeting on March 14.

President: T. C. Byerly
Vice President: A. A. Piringier
Secretary: M. A. Blackwell
Treasurer: Frank Longen
Director: Jane Wall
Director: W. A. Bailey
Director:

BUILDING 006 DEDICATION--The first major building at BARC to undergo complete renovation as part of the current facility modernization program is Building 006. Funds for this project were allocated in 1986. The renovation was completed in late 1988 at which time a new organization unit of BARC - the Plant Molecular Biology Laboratory - moved into the facility.

A special dedication ceremony for modernized Building 006 is tentatively scheduled for April 12, 1989. This ceremony will symbolize both the BARC facility modernization program and the continued improvement of BARC research into the area of high technology.

U.S. Congressman Steny Hoyer will be special guest and speaker at the dedication ceremony. In addition, top Agency officials, BARC scientists and staff, and numerous cooperating agencies and industries will participate. All FAR-B members are welcome and encouraged to attend.

Specific details concerning the time and place of the dedication ceremony will be available later. As of this writing, BARC is awaiting confirmation of Congressman Hoyer's schedule.

THE DIRECTOR'S NOTES--The activities of a new President and Secretary of Agriculture are always important, but in addition, there is always interest and curiosity about the impact of the transition on agency programs, leadership, and budgets. Although Secretary Clayton Yeutter has not yet announced all his key staff appointments and policies, there is no expectation at this time that there will be changes in the leadership, organization, and program, of the Agricultural Research Service.

The new Administration is also supporting the Agency's Fiscal Year 1990 budget request originally submitted to Congress by former President Reagan. The proposed new budget contains modest program increases -- on the order of about 3 percent -- for ARS. These increases are targeted for national research initiatives in ground water quality, food safety, livestock and poultry disease diagnostics, animal germplasm preservation, and plant genome mapping. Although BARC is well positioned to contribute to all of these national research programs, we do not yet know what portion of the budget increases might be allocated to us.

In addition, the proposed FY 1990 budget calls specifically for a \$10.5 million appropriation for BARC facility modernization. If approved by Congress, these funds will contribute significantly to our ongoing facility improvement program. As reported in previous newsletters, the Agency's cumulative commitment to BARC modernization in the last 4 years, including the present fiscal year, totals about \$35 million.

As BARC proceeds with implementation of important research programs and plans for facility modernization, we are being challenged more than ever before by special security needs and by the need to address ourselves to environmental concerns. We are giving serious and positive attention to these issues to insure protection of BARC research programs and land resources.

I look forward to seeing FAR-B membership at the March 14 annual meeting and hope we can discuss more thoroughly your interests in the many exciting and challenging activities and issues at BARC.

EDWARD B. KNIPLING
Director, BARC

NEWS OF INTEREST--At the ARS Biosystematics Parasitology Laboratory at Beltsville, Maryland, molecular biologists Dan Zarlenga and Ray Gamble have successfully cloned in bacteria the gene for a protein produced by Trichinella spiralis, the parasite that causes trichinosis in swine. The natural protein is a good diagnostic tool for detecting trichinella infection. But it previously had to be obtained by growing the parasites in rats, removing the parasites, and extracting the protein from them. Zarlenga's cloned material, if proved to be as effective as the natural protein, could provide a more reliable and less expensive supply and lead to more trichina testing in swine. IN October 1988 Agricultural Research, Sandy Hays, Author.

BELTSVILLE SYMPOSIUM XIV--Each of you has already received the Second Announcement of Symposium XIV, "The Rhizosphere and Plant Growth", but I'd like to tell you FAR-B Members some more about the event; which is sponsored by BARC with the cooperation of FAR-B. FAR-B will again make its award to a Beltsville scientist.

Symposium XIV which will take place May 8-11, 1989, will focus on the rhizosphere, the soil environment around plant roots. This is a very complex environment in which the effects of the plant on soil microorganisms and the effects of microorganisms on the plant are interacting and interdependent. In the past, much agricultural research has treated the soil as a "black box", and insufficient attention has been given to the interaction between roots, soil, and soil organisms.

Improved crop management and crop protection systems are needed to promote sustainable agriculture and improve the quality of the environment. More over, cost effective systems such as biological control and symbiotic nitrogen fixation that lessen the need for agricultural chemicals and decrease energy inputs would lessen environmental contamination and increase cost effectiveness. Advances in plant and microbial molecular biology are leading to increased advocacy for the use of soil microbes in such systems.

Thus, the symposium will define the present state of rhizosphere research, emphasize current problems, explore potential solutions and describe the potential for modern biotechnology applications to these problems. This is the first symposium in the U.S. that will bring together so many disciplines (microbiology, genetics, plant pathology, entomology, nematology and plant physiology) under the theme of the plant rhizosphere.

Many internationally acclaimed experts will participate including Dr. Albert Rovira (Australia), Dr. Ilan Chet (Israel), Dr. Glynn Bowen (Austria), Dr. James Lynch (England), and from the U.S., Dr. Edwin Schmidt (Univ. of Minnesota), Dr. Martin Alexander (Cornell Univ.), Dr. John Neilands (Univ. of California), and Dr. Trevor Suslow (Oakland, Calif.).

FAR-B members (except USDA employees) can participate in the Symposium for a \$25.00 registration fee. The Symposium banquet will be held Wednesday, May 10 and will cost \$25.00. FAR-B will again make its award to a Beltsville scientist. You can use the registration form in the Second Announcement.

DONALD L. KEISTER
Symposium XIV Chairman



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

June 1989

NEW PRESIDENT'S REPORT

There is so much news reported in this issue of the FAR-B Newsletter that I must put it into perspective for you before I turn to upcoming events and my own hopes for FAR-B's new few years. So . . . first, in March, there was the Annual Meeting with the election of new officers and Board members. Then in April, Building 006 was dedicated. This building is the first at BARC to be fully renovated as a part of Renaissance 93. Among the special guests at the ceremony was U.S. Congressman Steny Hoyer (Maryland) who has been such a consistent supporter of the Center. Next came the May 8 ceremony honoring Henry A. Wallace, Secretary of Agriculture, in the 1930's, the first person on a new USDA honor roll of agricultural scientists. And from May 8-11 there was the very successful Symposium XIV "The Rhizosphere and Plant Growth", Donald L. Keister, Chairman. The competent fund management of FAR-B Treasurer Frank Longen contributed to the success as did FAR-B's recognition of the achievements of two former Beltsville scientists at the banquet held May 10. I hope FAR-B can contribute as much or more to the success of Symposium XV on remote sensing. Also on May 8, Dr. K. Darwin Murrell was designated Acting Director of the Beltsville Area. Finally, in late May, I received a letter from U.S. Senator Paul S. Sarbanes (Maryland) reporting on his recent efforts on behalf of BARC and enclosing a copy of a presentation he had made May 18 before the sub-committee on agriculture, rural development and related agencies, Committee on Appropriations. His remarks are included elsewhere in this Newsletter.

There is another matter on which I wish to comment. Dr. Steere, FAR-B's President during its first three years of existence, speaks in this Newsletter of the future of our organization. The Board has sent him a letter of appreciation for all he did to make that future possible, and I reiterate here my own extra thanks. I hope I can build on the foundations he has laid.

With that in mind, I will now speak of my own hopes. FAR-B can increase its usefulness in support of Beltsville research by contributing to the dissemination of information about achievements, needs, and opportunities for participation - locally, in the county, the state, nation, and world-wide. To do this, FAR-B needs increased membership and member participation. We need suggestions for activities that will contribute to such dissemination of Beltsville research results.

With that in mind, I call your attention to the activities that will take place this fall at The National Visitors Center. All FAR-B members will be advised so they can participate.

Finally, I want to say thank you to Lucile Fonda. You were a pleasure to have on board and you contributed so much. Don't forget us.

TED BYERLY, President

FROM OUR FIRST PRESIDENT

On March 14, just before our Annual Meeting, FAR-B's outgoing Board of Directors met briefly to select the recipients of our 1989 awards for distinguished BARC scientists. Alan W. Taylor was chosen for "outstanding research and leadership in the effective and safe management of agricultural chemicals in the environment". Edward Hacskeylo was chosen for "pioneering research in mycorrhizae and other soil microbes for the advancement of forest tree productivity". (The presentations were made by me and by Al Piringer at The Symposium XIV banquet on May 10.)

At the annual meeting which followed immediately after this brief meeting, a new Board of Directors and new officers were elected to serve for the next three years. Thus FAR-B's fourth year began under new leadership. I speak for myself and for the other outgoing officers when I say how much we have enjoyed the privilege of serving during FAR-B's initial years and how much the cooperation of the BARC administration has helped. I also want to express my own sincere appreciation for the outstanding services of my associates. With enthusiasm such as theirs, FAR-B cannot help but become the successful enterprise we all envisage.

RUSSELL L. STEERE

DIRECTOR'S NOTES

Since the last issue of this Newsletter, some important and unexpected changes have occurred in the leadership of both BARC and ARS. On May 11, 1989, R. Dean Flowman, Administrator of ARS, announced that Dr. Gary Evens, Deputy Administrator for the National Program Staff, had been chosen by Dr. Orville G. Bentley, Assistant Secretary of Agriculture for Science and Education. In that position, Dr. Evans will serve as principal scientist and advisor to Department of Agriculture officials concerned with changes in global climate. As you are aware, this is a matter of concern to Mr. Bush, and also has stimulated considerable activity in Government agencies. Thus, it was necessary to have a staff person dedicated to the issue. Dr. Evans' special talents and insights will be of great value, and we wish him well.

Of more immediate concern to BARC however, is the appointment of Dr. E. B. Knipling as Acting Deputy Administrator for the National Program Staff. We don't know what the future holds, but if it becomes permanent it will be a real loss to BARC because of the vigorous leadership he has exercised as Director over the last 10 months. During his tenure many important initiatives were undertaken that are already bringing about improved management and direction. His contributions to the BARC modernization strategic plan will surely stand as a legacy to his insights and imagination. Fortunately, in his new position, he will continue to exercise important policy oversight of BARC programs and will be a resource for BARC management.

At the same time, Dr. Flowman appointed me as Acting Director for 90 days. Dr. Tom Sexton, Deputy Area Director of the Livestock and Poultry Sciences Institute, is serving concurrently as Acting Associate Area Director. His abilities and experience will be of great value in maintaining BARC's momentum towards overall excellence.

On the budget front, there is little to add to the report of Ed Knipling in the March Newsletter. However, the Beltsville Area has recently participated in an NPS-led exercise to identify promising research ideas and proposals for the FY 91 budget. Eleven thrust areas were identified; they included food safety, water quality, global climate change, biological control, sustainable agriculture, human nutrition, gene mapping, animal and plant germplasm, new products, and alternative crops. Some excellent research proposals bearing on these areas were generated and submitted to NPS, and we are optimistic that some important new program initiatives in these areas will involve BARC scientists.

Further on in this Newsletter are reports on the highly successful BARC Symposium XIV, the Henry Wallace induction into the ARS Honor Roll, and the dedication of Building 006, for the new Plant Molecular Biology Laboratory.

I look forward to the June 13 meeting of the FAR-B Board and to discussing these and other issues and plans concerning BARC.

K. DARWIN MURRELL

SENATOR SARBANE'S

Recently, Senator Paul S. Sarbanes of Maryland testified before the sub-committee on agriculture, rural development and related agencies, Committee on Appropriations. After first discussing the Soil Conservation Service and its role in efforts to clean up the Chesapeake Bay and in other soil conservation efforts, he addressed the funding needs of BARC. His statement was as follows:

"As you know, BARC is the single largest agricultural research center in the world. The Center has long enjoyed a reputation for leadership in the agricultural sciences because of the quality and scope of its research, contributions to agriculture, and prominent scientific staff. BARC's research activities on environmental quality, food safety and nutrition, climate change, and biotechnology among others are vital to keeping our nation in the forefront of agricultural production and competitiveness. Unfortunately, deterioration and obsolescence of many of the Center's 50-year old facilities and infrastructure are hampering the quality of scientific research and the image of BARC.

A modernization program called Renaissance 93 was launched in 1985 to rejuvenate the Center and bring it up to tomorrow's standards. With the Committee's assistance, incremental funding of approximately \$8-\$10 million a year has been provided for urgently needed repair and maintenance work, energy retrofit, renovation, and upgrading or replacing sewers and roads. I have attached to my statement a summary of the projects completed in FYs 86-88 and underway for FY 89 and ask that it be made part of the record.

"The Administration's budget request includes \$10.52 million for BARC modernization for fiscal 1990. However, preliminary findings of an

engineering consulting firm which is assisting BARC with its facility modernization planning indicate that there is a need to accelerate funding beyond \$10 million per year to address remaining infrastructure requirements, improve security systems and provide for selected new construction when it is more cost effective than renovation. An additional \$10.3 million above the budget request is needed for Fiscal 1990 to repair and correct safety problems on Powder Mill Road, for planning and design of a human nutrition research facility in cooperation with the National Institutes of Health, and to strengthen BARC security and safety support systems. For research programs, \$4.6 million is needed to enhance research capabilities in human nutrition, environmental quality and gypsy moth research. I have attached additional documentation of the details and cost analysis for these projects and ask that they be made part of the record.

I greatly appreciate the Committee's past support for the Beltsville Agricultural Research Center and its long-term program needs and hope you will continue to give BARC a very high priority."

1989 ANNUAL MEETING

President R. L. Steere convened the Annual Meeting of the Friends of Agricultural Research at Beltsville (FAR-B) at 1:00 pm in the Theatre Room of the National Visitor and Education Center (Log Lodge). More than one-third of the FAR-B members were present.

The Minutes of the 1988 meeting were read and approved. Treasurer Frank Longen reported the year-end status of the two audit-approved bank accounts: the Regular Account (\$7808.96) and the Conference and Symposia Account (\$6198.11). Dr. Ted Byerly, representing the Corporate Relations Committee, advised that 90 letters soliciting support for Symposium XIV had been sent. Jane Wall of the Information Committee, asked for help in monitoring news reports of current BARC research, recognition awards, and retrospective stories. Retiring President Steere spoke of the cooperation and support of the Board of Directors during his 3-year term as FAR-B's first president and mentioned FAR-B accomplishments related to Beltsville, most notably its auxiliary fiscal support of the world-renowned Annual Symposia. Membership Committee Chairman, Al Piringier reported a total of 135 members including 1 Sustaining Member, 9 Patrons, 87 Personal members, and 38 Associate Members. Reporting for the nominating committee, Al Piringier presented the following list of candidates:

President:	T. C. Byerly
Vice President:	A. A. Piringier
Treasurer:	Frank Longen
Exec. Secretary:	Margaret Blackwell
Directors:	Jane Wall, W. A. Bailey, W. L. Hollister, George Irving, C. Golumbic

The candidates were elected unanimously.

The guest speaker was BARC Director, Dr. Ed Knipling who noted the significant FAR-B role during its first 3 years and expressed his appreciation for the support given to Beltsville. He was confident of the ultimate stability of ARS research and facility evolution at Beltsville.

He noted that in Fiscal Year 89 there is a \$7 million increase for ARS programs and modernization. Budget proposals for FY 1990, made public in January, provide about \$18 million in program increases for ARS, and it is expected that about 10-20% of that amount will be allocated to Beltsville. He noted the many research highlights at BARC - transgenic animals and plants; CGI environmental release; soil biocontrol and technology transfer; and patents, exclusive license, and joint ventures. Research priorities for ARS and BARC address many areas of concern from environmental quality, groundwater, and global climate to food safety and plant and animal diseases. There are also the concomitant issues and challenges of facility modernization, safety, security, hazardous-waste management, and commercial-use land pressures. About 70 acres included in the Master Plan for land use by Metro have been released to Metro.

All of the new officers were present and were introduced by Dr. Steere.

AL PIRINGER

BELTSVILLE SYMPOSIUM XIV

The Beltsville Symposium XIV on "The Rhizosphere and Plant Growth" held May 8-11, 1989 was a resounding success. Over 300 scientists from all over the world registered to hear the most noted rhizosphere researchers discuss the state of rhizosphere research, past accomplishments, and prospects for the future. Because the rhizosphere is the soil environment immediately surrounding the plant's roots, it is an immensely complex environment with hundreds of different kinds of microbes and small animals, all interacting with each other and the plant's roots. Thus manipulation of that environment could produce future advances in the biocontrol of soilborne diseases and the promotion of plant growth.

The Symposium had an international atmosphere -- 45 scientists from five continents representing 17 foreign countries were present. The Holiday Inn-College Park which is close to BARC, served as headquarters. The oral presentation were held in the main auditorium at BARC, the poster sessions and socials were held at the Holiday Inn. The meeting facilities at the Holiday Inn, which were available for the first time this year, greatly increased the informal exchange of information - an exchange that is as important as the formal presentations. The Symposium Chairman, Dr. Donald L. Keister; the Program Committee; the Local Arrangements Committee led by Dr. Robert Leffel; and the Symposium Secretary, Margaret Blackwell, are all to be congratulated for the success of this major event.

As a result of FAR-B's solicitation, a number of companies were generous contributors to FAR-B in support of Beltsville Symposium XIV. This was of great help to FAR-B in assisting BARC to host this event. These contributors included: FMC Corporation, Princeton NJ; Rohm & Haas Company, Spring House, PA; ECOGEN, Inc., Langhorne, PA; Pioneer Hi-Bred International, Inc., Johnston, IA; Campbell Soup Co., Camden, NJ; Hawaiian Sugar Planters Assoc, Aiea, HI; W. R. Grace & Co., Fogelsville, PA; CIBA-GEIGY, Greensboro, NC; Monsanto Co., St. Louis, MO.

THE BELTSVILLE LEGACY OF HENRY A. WALLACE

In the 1930's while Henry A. Wallace was Secretary of Agriculture, he directed BARC's major expansion. Beltsville scientists building on the foundation he laid, have made vital contributions to agricultural science such as the genetic concepts that guide modern plant and animal breeding; isolation of phytochrome, the photoreceptor that regulates plant responses to light; and discovery of plant viroids, the smallest known pathogens.

At a ceremony honoring Wallace in the Building 003 auditorium on May 8 at 1:30 pm, ARS Administrator R. Dean Plowman unveiled a plaque naming Wallace as the first person on a new USDA "honor roll" of agricultural scientists.

Plowman said Wallace was a Renaissance man with many accomplishments as a scientist, administrator, and statesman. He was the logical first choice for the honor roll for developing and promoting hybrid corn.

The main speaker at the ceremony was former Iowa Senator John C. Culver, who is working on a Wallace biography to be published next year. Other speakers were Iowa Senator Charles E. Grassley, Iowa Representatives Neal Smith and Jim Leach, and Jean Wallace Douglas, Wallace's daughter. She recalled that, as a child, she visited Beltsville many times with her father and brothers. The plaque, displayed in the foyer of 003, reads:

In Honor of
HENRY A. WALLACE
1888-1965

Vice President
Secretary of Agriculture

Scientist, farmer, journalist,
statesman, businessman, public
servant and humanitarian--he
served the world with uncommon
principles and distinction

As Secretary of Agriculture in the 1930's
he directed the major expansion of the
Beltsville Agricultural Research Center

May 8, 1989

JIM DE QUATRO

*****Renewals for 1989 Membership Year*****

About 25 of our members have not responded to the Reminder Notices sent out in April for renewal of FAR-B membership for 1989 (through March 1990). If you are one of those who has not yet remitted your dues, please do so in the near future. To all our members who have been so prompt in keeping their membership up-to-date, our sincere thanks.

FRANK LONGEN, Treasurer

DEDICATION OF RENOVATED BUILDING 006

A new Plant Molecular Biology Laboratory, a focal point for genetic engineering at the Beltsville Agricultural Research Center, U.S. Department of Agriculture, was dedicated April 21 at Beltsville.

Special guests and speakers included U.S. Congressman Steny H. Hoyer (5th District, Maryland) and Charles J. Arntzen, Dean of Agriculture, Texas A&M University. Arntzen, Hoyer, ARS Administrator R. Dean Plowman, and Assistant Secretary of Agriculture for Science and Education, Orville G. Bentley, all helped cut a double-helix ribbon to open the laboratory.

These dedication ceremonies marked a major step in the ambitious plan to modernize the Beltsville Agricultural Research Center. The first fully renovated building, the old West Building 006, houses the new laboratory.

STEVE BERBERICH

NATIONAL VISITOR CENTER TAKE PRIDE IN AMERICA AND DEDICATION

On June 3, volunteer gardeners planted a perennial garden in front of the ARS National Visitor Center's Log Lodge; they also trimmed azaleas and tended existing gardens. Behind the Lodge, volunteer trail blazers created a nature trail around the scenic lake, restored pathway bridges, and constructed a prayer bench on a point overlooking the lake. It is a perfect place to have a brown bag lunch or find some well-deserved solitude.

This spring work day was sponsored by the national Take Pride in America (TPIA) campaign, which is devoted to restoring a strong land use ethic among our citizens. FAR-B provided a lunch for the volunteers, a contribution appreciated by all.

I hope we can hold such a TPIA day each spring and each fall. This fall, we will invite local chapters of conservation groups and horticultural clubs to take part. We can build additional pride into the Beltsville research community through our new visitor and education center. In the fall, I will make sure that we get out plans for this special day to FAR-B in time to notify members who may wish to take part.

Along this line, I should note that there are provisions in the 1981 Farm Bill for volunteers to work for federal agencies. According to ARS Personnel Office, volunteers for the National Visitor Center can be given job descriptions, can be covered under workman's compensation insurance, and can be given awards for their contributions.

Also, I am interested in the possibility that FAR-B members could talk with visiting groups, contribute to Beltsville tours and provide information for a new series of handouts being developed by the Visitor Center.

DEDICATION PLANS -- Since the ARS National Visitor Center will hold a dedication ceremony for its Log Lodge exhibit hall in the fall of 1989 (a date will soon be set), I am interested in the ideas of FAR-B members and others regarding the idea of dedicating this hall to earlier agricultural scientists and engineers. As most of you know, the Log Lodge was built in 1937 by the Civil Conservation Corps. Since that time, research has helped transform agriculture into a science-based industry.

In dedicating a national visitor center for agricultural sciences, it would be appropriate, I think, to focus attention on the outstanding contributions that our scientists have made to the now-bountiful food and fiber systems in this country. Fifty years ago, during the Great Depression, the Log Lodge was built at Beltsville, times were tough in the natural resource-based industry.

STEVE BERBERICH, Director
ARS National Visitor Center

RECENT BARC RETIREES

The following BARC employees have recently retired. FAR-B wishes them well and hope they will consider becoming personal members of our organization. To this end, they are receiving a copy of this Newsletter.

DEANE F. WEBER, Nitrogen Fixation and Soybean Genetics
Laboratory, PSI
AMELIA H. RISDON, Nitrogen Fixation and Soybean Genetics
Laboratory, PSI
JEAN MOGEL, National Program Staff
ARLENE G. KELLER, Hydrology Laboratory, NRI
LEONARD L. JANSEN, Germplasm Resources Information Network,
Germplasm Services Laboratory, PSI
DONNA PETERMAN, Plant Stress Laboratory and Climate Stress
Laboratory, NRI
JEANNE R. MORRISSETTE, Hydrology Laboratory, NRI

POST-OFFICE BOX PROBLEMS

Once again we must apologize to some of our members and to other correspondents for the carelessness of the Beltsville Post Office in handling our mail. Recently, we learned once again (this is the third occasion) that some mail was returned with the notation that our Post Office Box had been "closed out - no forwarding address". This is not the case. The Post Office explanation was that during its building renovation, several ID labels became detached from the boxes, and workmen replaced labels on the wrong box numbers. At any rate, the Postmaster assured us "It will not happen again".



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

SEPTEMBER 1989

PRESIDENT'S REPORT

On August 29, 1989, R. Dean Plowman, Administrator of ARS, announced that Dr. Essex Finney would be detailed as Acting Director of BARC. Dr. T. J. Sexton is Acting Associate Director. FAR-B members are well acquainted with Dr. Finney who did so much to help us in the early days of our organization. We look forward to working with him again and with Dr. Sexton. We also wish to thank Dr. K. Darwin Murrell who, as Associate Director of BARC and lately as Acting Director, has worked with FAR-B during a considerable portion of its existence.

And now to the August meeting of the FAR-B Board. Certain current and upcoming events at Beltsville were described for us by Dr. T. Sexton, Acting Associate Director of BARC.

1. Building 003, BARC-West, the Headquarters Building, will be closed for renovation by December 31. During the renovation, headquarters will be housed in the National Agricultural Library. A complete modernization of Building 003 will be accomplished.
2. Arrangements for the development of the Metro Terminal on 34 acres of BARC-East land include plans for the development of an equal area of wetlands of superior ecological quality on a different BARC site. Dr. Sexton gives additional details elsewhere in the Newsletter.
3. New, modern swine facilities will be developed at an internal site on BARC-East. These will house current and expanded swine research. When the internal site is completed, the present field facilities will be eliminated.

Next, I should note the anticipated visit to Beltsville this fall of the new Ambassador from Pakistan. This visit is sponsored by former U.S. Senator Mathias who has long appreciated the importance of Beltsville as a research center known throughout the world and who understands well the impact of Beltsville research achievements, past, present, and anticipated.

Then there is the greatly regretted death of Dr. Raymon E. Webb, long time contributor to the excellence of Beltsville research. The FAR-B Board asked Dr. Vic Boswell to provide a review of Dr. Webb's contributions. You will find his report later in the Newsletter.

There's another matter I'd like to take up with FAR-B Members. Recently, the FAR-B Board was visited by a representative of "The World & I", a 700-page monthly magazine published by the Washington Times Corp., 2830 New York Avenue, NE, Washington, DC 20002. This magazine includes in-depth 2000- to 3500-word articles describing "significant discoveries at the cutting edge of all fields of natural science and technology". It has a circulation of about 70,000. If any FAR-B member is interested in preparing such an article or knows a Beltsville scientist who may be interested in doing so, I suggest he contact G. C. Strait, World & I, Natural Science Editor, at the above address. Mr. Strait's phone number is 202-635-4035.

Along similar lines, there is the article in this Newsletter by Steve Berberich, Director, National Visitor Center, regarding the dedication of the exhibit center in the historic CCC-built Log Lodge, BARC-East. He notes that the exhibits will include illustrations of current and past research achievements of national and global significance at Beltsville and other USDA locations. And he asks that FAR-B members suggest other subjects for exhibits and new modes of exhibition as well as volunteering as guides.

FAR-B too needs suggestions for ways to support and participate in the activities of the Beltsville area. Also, FAR-B needs more members, people interested in food, agriculture, and conservation and in the research necessary to their enhancement so as to sustain the productivity of Beltsville research. Please help recruit new members.

T. C. BYERLY, President

ENVIRONMENTAL INITIATIVES

BARC is assisting the Washington Metropolitan Area Transit Authority (WMATA) and the WMATA environmental consultant in the mitigation process whereby nontidal wetlands affected by the proposed Metro Service and Inspection Yard (located on 34 acres of BARC-East land) can be replaced or mitigated by the restoration, creation, or enhancement of wetlands on a basis of "no net loss". Suitable areas will be identified by BARC.

A second environmental initiative involves the collaboration of BARC with the Anacostia Watershed Society to enhance the quality of Paint Branch in the South Farm Area. Goals of the project are to improve water quality, aquatic life, erosion control, and diversion structures to create rivulets and pools.

T. J. SEXTON

Acting Associate Director

BELTSVILLE SYMPOSIUM XV

The fifteenth BARC Symposium will address the topic "Remote Sensing for Agriculture". The meeting will be cosponsored by the NASA Goddard Space Flight Center of Greenbelt, Maryland and will be held at Goddard due to the planned renovation of the BARC auditorium. Symposium dates are May 16-18, 1990.

Remote sensing provides a tool for rapid assessment of agricultural conditions over large areas, the dominant factor affecting prices of commodities. The USDA has a mandated responsibility to report at regular intervals on anticipated yield of both domestic and foreign agricultural products. Satellite technology shows promise of increasing the timeliness and possibly accuracy of such assessments. Indeed, improvements in sensor and computer technology are bringing closer the day when individual farmers may utilize this source of information in managing their operations as well as in making decisions about when to sell their produce. The symposium speakers will address current research in their discipline; poster sessions will address both research in and applications of remote sensing.

Cochairmen for the symposium are Dr. John C. Price of the Remote Sensing Research Laboratory at Beltsville, and Dr. Darrel Williams of the Biospheric Sciences Branch (formerly Earth Resources Branch) of NASA Goddard.

JOHN C. PRICE

ARS ADMINISTRATOR

In a continuing effort to maximize the utilization of our key management personnel, we are making the following assignments.

Effective this October, Dr. Richard Amerman will be permanently assigned to the National Program Staff in Beltsville. In addition to continuing his work in groundwater quality, Dr. Amerman will play a key role in soil and water initiatives for the National Program Staff.

Dr. Dennis Champion has completed his detail as Director, Midwest Area, and will be returning to his position as Assistant Area Director, Midwest Area. We appreciate the very capable manner in which Dr. Champion served in this key position.

Succeeding Dr. Champion as Acting Director, Midwest Area, is Dr. Darwin Murrell. For the past two years, Dr. Murrell has been Associate Director, Beltsville Area. Most recently he has been Acting Director at Beltsville.

Coming back on detail to the Beltsville Area as the Acting Director is Dr. Essex Finney. Dr. Finney, of course, is no stranger to the Beltsville Area. He served the Area in various capacities over the years prior to his current assignment as Associate Director, North Atlantic Area.

We are, indeed, fortunate to have such capable leaders to step up to the challenge of these assignments.....

R. D. PLOWMAN

DR. RAYMON ELLIS WEBB
1919-1989

Dr. Raymon Ellis Webb died July 20, 1989 of a heart attack at his home near Beltsville, MD. Ray was born near Truxno, Louisiana, November 20, 1919 and spent his early years on the family farm. In 1942, he received a B.S. in Agriculture with major studies in horticulture from Louisiana State University, and that same year he was commissioned a second lieutenant in the U.S. Army. After 3-1/2 years as an artilleryman in the European Theatre of Operations, he was discharged as a captain. He had received five campaign ribbons, the Bronze Star for Meritorious Service, and the Air Medal for part-time "flying coffin" duty as an aerial artilleryman.

Ray married Mary Virginia O'Brien of Bunkie, Louisiana in April 1943. Their first child was born while Ray was in Europe; the telegram announcing the event read "Junior is a lady".

In late 1945 Ray became assistant horticulturist at the Northern Louisiana Experiment Station. In September 1947 he returned to the Department of Horticulture at Baton Rouge where he received his M.S. in 1948. In 1950 he took a leave of absence from the Department to work for his doctorate in plant pathology at the University of Wisconsin. In 1952, after completion of the requirements for his Ph.D. in plant pathology, he returned to the Department of Horticulture at Baton Rouge as assistant horticulturist in potato breeding. Later, he and J. C. Miller released the popular potato cultivar, Red La Soda.

In 1953 Ray came to Beltsville to work under Henry A. Jones on potato diseases. For 6 years he supervised the USDA cooperative disease studies on potatoes in four states and did research at Beltsville on disease identification and control and on improved detection of pathogens. He also actively cooperated with breeders in screening potato clones and seedling progenies for resistance to several virus and fungus diseases. Then, in 1959, because of his versatility and adaptability as a plant pathologist, plant breeder, and horticulturist, Ray was asked to move to the Vegetable Branch and work on solanaceous fruits and on spinach and cucurbits. During the 10 years that Ray led these investigations, staff, research activity, and productiveness increased substantially. His own research was concentrated largely on developing new disease-resistant cultivars of tomatoes for machine harvest. He also continued and advanced the work started by Dr. Jones on spinach hybrids and cultivars resistant to blue mold and white rust and improved the resistance of cantalopes to "crown blight", mildew, and virus diseases. Several highly successful spinach hybrids and cultivars and tomato cultivars were released. Finally, in 1969, Ray returned to potato work, as Leader of the National Potato Breeding Program, and in 1972 he was made the head of the Vegetable Laboratory of the Horticultural Institute of the USDA. The Laboratory was staffed with 10 professionals working in five disciplines and had 13 supporting personnel; it was charged with the development of disease and pest resistant high quality, adaptable germplasm for the major vegetables. Both classical and new methods, including tissue culture and protoplast techniques, were involved. He continued work on smooth and russet types of potatoes for both processing and fresh use. In cooperative work involving several states, two new potatoes of Beltsville origin proved to be outstanding, Atlantic for chips and BelRus, for fresh use.

In addition, for more than 20 years Ray was active in USDA's effort to aid the agriculture of other lands. El Salvador, India, Pakistan, and Yugoslavia received his continuing attention for many years; and he had occasional consultations with the Dominican Republic, Algeria, and Thailand. Reports indicate that new cultivars have been selected from materials he sent to Egypt, Pakistan, Brazil, Uganda, and Nigeria.

Ray published over 170 research articles, and his work has been widely recognized by The Grower, The Vegetable Grower, and The Packer and also by The New York Times and the Washington Post. He was a member of several professional societies including the American Society for Horticultural Science, the Potato Association of America, and the American Phytopathology Society (he was variously president, vice-president and secretary of its Potomac Division). He was a member of the Cosmos Club of Washington. He received the USDA's Superior Service Award in 1970 and in 1983, and he received an Honorary Life Membership in the Potato Association of America in 1980. He was a member of the honor societies of Alpha Zeta, Phi Kappa Phi, and Sigma Xi.

Dr. Webb retired from USDA at the end of 1987 but did not stop work. He is survived by his wife, of the home, 10504 43rd Avenue, Beltsville, MD 20705; a daughter, Mary Ann Fried of Reisterstown, MD; two sons: Raymon E., Jr. of Warren Robins, GA, and John Marshall of Beltsville; and five grandchildren.

VIC BOSWELL

ARS NATIONAL VISITOR CENTER

In the June FAR-B Newsletter, I commented on plans to hold a dedication ceremony for the new exhibit hall of the ARS National Visitor Center (formerly the Log Lodge). A date in the fall seemed very likely. However, delays still plague us. I've been authorized to form a committee for planning and carrying out a dedication in the spring. I can promise you that FAR-B members will be advised by a special mailing as soon as we have a firm date. Be assured that the Friends are very important to the Visitor Center. Indeed, I hope that a FAR-B Board Member will be willing to serve on the dedication committee.

However, there will be a Take Pride in America day (TPIA) at the ARS National Visitor Center on Saturday, October 14. This will be the second TPIA day of 1989. On June 3, 19 volunteers planted a perennial garden in front of the Log Lodge exhibit hall and cleared part of a nature trail around the Log Lodge lake. Volunteers are welcome to attend the TPIA day on October 14. We will continue developing the trail and gardens of the Lodge. FAR-B will provide a luncheon.

My major message has to do with my hope that FAR-B members will offer to help the staff of the Visitor Center by volunteering as special tour guides and assistants. Requests for tours and for information about ARS have at least doubled since this time last year---for example, from April 1 to June 30, 1989, the number of visitors to the Center increased 65 percent over the number during the same period in 1988. This has caused a large increase in the work of our two full-time ARS Information Specialists who, among other duties, conduct both technical and general public tours.

I appealed for help to ARS employees who might be interested in such a volunteer effort. In fact, 15 or so people did respond, but the most notable reaction, as I see it, was that of ARS National Program staff Scientist Ralph Bram; "It seems to me that the role of tour guide for the ARS National Visitor Center could best be filled by retired ARS scientists in the greater Washington Metropolitan area. These individuals have a wealth of experience and knowledge of ARS and its history, would in all probability approach the task with enthusiasm and vigor, and would be available during various times of the week without disrupting ongoing research responsibilities. Such an assignment would also provide a feeling of need and continuing commitment to the volunteer."

It is a point of view I've held for a long time!

Here is the procedure we follow when a volunteer comes forward. First, the person is invited to take a tour to see what it's all about. Then those who are still seriously interested in learning how to handle public tours are exposed to a simple training plan put together by my staff. Obviously some FAR-B members would be likely to prefer to develop technical tours in their fields of expertise; others may prefer to work with the general tours.

Use of volunteers in this way has been possible since passage of the 1981 Farm Bill, and agencies such as the Forest Service, Soil Conservation, and The National Park Service now use hundreds, even thousands, of volunteers. Job descriptions can be developed, volunteers are covered by insurance, and incentive awards can be provided.

So FAR-B members who are interested should call Marge Fellows, our Tour Coordinator, (301) 344-2720.

I'll be briefer about my next message, not because it's less important but because the idea is relatively new and still being worked out. It has to do with the development of outside Visitor Center exhibits of the work of ARS laboratories. Such exhibits might simulate the actual experiments involved in pheromone trap chemistry or in gypsy moth research; or a greenhouse could be used to illustrate research in plant biotechnology, or a garden could be provided to house National Arboretum releases. Obviously the fund of ideas of this type could be increased by FAR-B members. I therefore hope very much that you Friends will suggest ARS exhibits at Beltsville as we become more and more oriented to the outside of the Log Lodge. Thank you.

STEVE BERBERICH, Director
ARS National Visitor Center
Beltsville, MD

AWARDS

HENRY A. AFFELDT, JR., Agricultural Engineer, USDA-ARS, Instrumentation Research Laboratory, Beltsville, MD, was recently named a 1989 Paper Award winner by the American Society of Agricultural Engineers. Affeldt's paper, "Elimination of Adverse Dynamic Shaker Loading on Fruit and Nut Trees," co-authored with G. K. Grown, J. B. Gerrish and T. A. Esch, was published in Transactions of the ASAE during 1988. The award was announced by ASAE President Wilbur M. Davis at the Annual Awards Banquet during the International Summer Meeting of the Society. In all, 374 papers were evaluated by the selection committee, and only nine were selected for awards. Winners of ASAE Paper Awards are chosen from papers of engineering merit published in the Society's Transactions of the ASAE and Applied Engineering in Agriculture during the previous calendar year.

The following are some of the BARC personnel who recently received awards:

Livestock and Poultry Sciences Institute

HYUN LILLEHOJ - Invention; LAWRENCE JOHNSON - Invention;
EDWARD ROBEL - Invention; HOWARD JAFFE - Invention

Beltsville Human Nutrition Research Center

GILES MILLS - Invention; JANICE FABINA - Special Act;
ELLIOTT BERLIN - Special Act

Natural Resources Institute

RICHARD BROWN - Invention; FRANK MILLS - Invention

Plant Sciences Institute

BENJAMIN MATTHEWS - Invention; WAYNE MACKAY - Special Act;
GENE LUNNEY - Special Act; CHARLOTTE SALTZBERG - QSI

BELTSVILLE RESEARCH, A CONTINUING STORY

Pre-selecting Sex of Livestock

Lawrence A. Johnson, animal physiologist, speaking at the 22nd annual meeting of the Society for study of Reproduction, recently reported results of experiments he conducted with biologist James Flock and animal physiologist Harold Hawk at the Reproduction Laboratory at Beltsville.

Batches sorted to consist of female-producing sperm led to more than 90 percent female offspring in rabbits. And batches sorted as male-producing sperm resulted in male offspring 80 percent of the time. The technique is complicated, using fluorescent dye, lasers and static fields, but it works because female (X-chromosome-bearing) sperm have slightly more genetic material than male (Y-chromosome-bearing) sperm. "Being able to preselect the sex of livestock could improve the economics of livestock production and management," he said. "It would also speed genetic improvements, since many genetic traits, such as growth rate, are closely associated with sex."

The researchers have inseminated sows with sorted batches of X- and Y- bearing boar sperm. That work is not complete, but 75 percent of the offspring have been of the desired sex. Studies with cattle and sheep are underway.

Johnson first developed the technique for tail-less--non-viable sperm. Now modified for intact sperm, it can sort about 300,000 sperm cells in an hour. Normally, several million to three billion sperm cells are used for artificial insemination of livestock animals, depending on the species. The results represent a significant step forward, but the technique is not ready for commercial use. It currently is too slow to be profitable except in special situations such as in combination with in vitro fertilization. In the sperm-sorting technique, sperm cells are stained with a fluorescent dye that attaches to the DNA. Then, inside a machine called a flow cytometer/cell sorter, dyed sperm pass single file through a laser beam. The beam causes the sperm to glow, but X-bearing sperm give off more light because they carry more DNA than Y sperm. Optical detectors collect the light given off by each sperm cell and send the light to a computer. After the sperm pass the laser beam, they are encased in microscopic droplets of fluid. The computer places a positive or negative electrical charge on each droplet--positive for Y sperm, negative for X. Next the sperm/droplet enters an electrostatic field, where X and Y sperm are pulled away from one another and fall into separate chambers. The sperm are then used for insemination. Some of the sperm are also reanalyzed for DNA content so Johnson can predict the sex ratio of the offspring from the time of insemination.

VINCE MAZZOLA
ARS Information Staff

DR. TERRILL HONORED

Clair E. Terrill, Animal Scientist who retired from ARS in 1981 as National Program Leader, received the Saddle and Sirloin Portrait Award for 1989 and had his portrait hung November 12 at the banquet following The Saddle and Sirloin Seminar on "The Future of Sheep and Sheep Research" held at the North American Livestock Exposition in Louisville, KY. This collection of portraits was begun in 1903 and now contains about 300 portraits of leaders in the livestock industry including Presidents, Secretaries of Agriculture, producers, administrators, scientists, and others. Dr. Terrill is recognized nationwide and worldwide for accomplishments and support for more efficient production of lamb meat and wool fiber. At the Seminar (Moderator Dr. R. D. Plowman, ARS Administrator), Dr. Terrill spoke on "Biotechnical Selection".

BARC EMPLOYEES

Achievements, Honors, and Awards

International Award

The government of Japan has invited research immunologist Joan K. Lunney, Livestock and Poultry Sciences Institute, Beltsville, to be the featured lecturer at Japan's First International Symposium on Frontiers of Veterinary Immunology.

Other Awards

Agricultural meteorologist Paul C. Doraiswamy, Natural Resources Institute, received a Certificate of Achievement from USDA's Office of International Cooperation and Development for his work (with John Quebedeaux of the World Bank) on the Climate Atlas of Saudi Arabia.

Research food technologist Bradford William Berry, Product Quality and Development Institute, has received the Meats Research Award from the American Society of Animal Science.

Microbiologist Hei-Ti Hsu, Plant Sciences Institute, has been appointed associate editor of Phytopathology.

Microbiologist Louis C. Gasbarre, Livestock and Poultry Sciences Institute, has been elected to the Board of the American Association of Veterinary Immunologists.

Deputy Administrator Edward B. Knipling received a Beltsville EEO Recognition Award for his high level of support for the area's EEO programs and leadership of its EEO Advisory Committee during his tenure as Beltsville Area Director.

Patricia Ann Adams, Florist and Nursery Crops Laboratory, received the Secretary/Clerical Employee of the Year Award from the Beltsville Area EEO Advisory Committee Federal Women's Program.

A LOOK AHEAD - SYMPOSIUM XVI

Planning is already underway for Beltsville Symposium XVI "Plant Photomorphogenesis" which will be held September 22-27, 1991 at The Center of Adult Education, University of Maryland University College, College Park, MD.

The year 1991 marks the 40th anniversary of photochrome research which began in 1951 when Beltsville scientists discovered the phenomenon of red-far red reversibility, first in seed germination and then in the photoperiodic control of flowering and predicted the existence of a photoreversible photoreceptor. Approximately two decades of work at Beltsville by many American and foreign investigators led ultimately to the isolation of the pigment. Many of these scientists subsequently developed active centers of photomorphogenesis research at other locations in the United States and around the world. In view of this anniversary, the European Photomorphogenesis Group will participate in the Beltsville Symposium for its 1991 meeting.

WILLIAM J. VANDERWOUDE
and STEVEN J. BRITZ
Symposium Co-Chairmen
USDA, ARS, BARC,
Plant Photobiology Lab.
Beltsville, MD

ARS NATIONAL VISITOR CENTER

The ARS National Visitor Center is nearing completion of its first full year of operation. The guest list for 1989 included visitors from over 80 different countries, 120 different schools and universities, and scores of science and industry organizations.

Distinguished guests for October and November included Herman Dehennin, U.S. Ambassador from Belgium; Charles E. Kruse, Missouri State Director of Agriculture, and Missouri State Senator Lybyer, Agriculture Committee Chairman; Andrzy Kornacki, Director of the Food Center, Poland, and 1989 winner of the USDA Fellowship Award; Anas Masoud Othman, Minister of Agriculture, Livestock and Natural Resources in Tanzania; Keith W. Steele, Minister of Agriculture and Fisheries in New Zealand; a delegation of seven agriculture and commerce officials from the People's Republic of China, arranged by the American Soybean Association; a group of five high level agricultural officials from Sweden; and a delegation of 16 farm, journalism and protocol officials from the Soviet Union.

In the past few months, since we asked for volunteers at the National Visitor Center, ARS Personnel has helped us iron out some wrinkles in our volunteer program. Any FAR-B members who wish to volunteer should call 344-2720 or stop by to see Jeanette Baylor for a summary of how it works.

FAR-B members are invited to an Old Fashion Holiday Gathering at the Log Lodge, December 19, 1:30 p.m.-3:30 p.m. Guests can help trim the National Visitor Center tree, donated by the Gallant Greenery. Share refreshments and warm your spirit by the crackling fire.

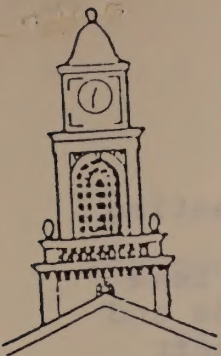
STEVE BERBERICH, Director
National Visitor Center

- E. LEVINE, NASA-GSFC, Greenbelt, MD
Assessment of Biophysical Soil Properties Through
Spectral Decomposition Techniques
- R. D. JACKSON, USDA-ARS, Phoenix, AZ
Satellites: Future Tools for Farm Management?
- C. O. JUSTICE, University of Maryland, College Park, MD and
C. J. TUCKER, NASA-GSFC, Greenbelt, MD
Monitoring Global Vegetation with NOAA AVHRR Data
- G. W. PETERSEN and W. MYERS, Pennsylvania State University,
University Park, PA
Role of Geographic Information Systems in Remote Sensing
- K. J. RANSON and J. R. IRONS, NASA-GSFC, Greenbelt, MD and
C. S. T. DAUGHTRY, USDA-ARS, Beltsville, MD
Canopy Albedo from Bidirectional Reflectance
- S. RUNNING, University of Montana, Missoula, MT and
H. H. SHUGART, University of Virginia, Charlottesville, VA
Integration of a Forest Carbon Cycle Model
With a Forest Succession Model, and Applications
for Regional Ecology
- T. SCHMUGGE, USDA-ARS, Beltsville, MD
Remotely Sensed Temperature Observations in HAPEX
- B. SEGUIN, J. P. LAGOUARDE and M. SAVANE, INRA, Montfavet, France
The Assessment of Regional Crop Water Conditions
from Meteorological Satellites Thermal Infrared Data
- C. WIEGAND, A. J. RICHARDSON and S. J. MAAS, USDA-ARS, Weslaco, TX
Vegetation Indices in Crop Assessments
- D. WILLIAMS, NASA-GSFC, Greenbelt, MD
A Comparison of Needle, Branch and Canopy Level
Spectral Reflectance Properties for a Variety
of Conifer Species

The written papers will be published as the symposium proceedings, and there will be poster sessions of contributed papers. The Banquet will take place May 17 at the Howard Johnson Plaza-Hotel, 8500 Annapolis Road, New Carrollton.

The Third Announcement will be circulated in early 1990.

Symposium Co-Chairmen
JOHN C. PRICE
USDA, ARS, BARC, RSRL
Beltsville, MD
DARREL L. WILLIAMS
NASA-GSFC,
Greenbelt, MD



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

DECEMBER 1989

PRESIDENT'S REPORT

The year 1989 has been a good year for the Beltsville Area and therefore for FAR-B. In the case of FAR-B, we have added more members (though we still need more), and we continue to be sufficiently solvent to help out here and there with little extras like lunch for the volunteers who worked at the Visitor's Center on Take Pride in America Day, October 14. In the case of the Beltsville Area, Building 006 has been renovated and dedicated to research in plant molecular biology, and Building 003, which houses BARC headquarters is now being renovated (begun in December). Dr. Essex Finney, Acting Director, will tell you more about that in his COMMENTS. (He will also tell you about Dr. Gordon Marten, new Acting Associate Director of the Beltsville Area who attended the November meeting of the FAR-B Board of Directors.) Other buildings are scheduled for renovation as funds become available. But there is another aspect to all this....these renovated or to-be-renovated buildings are 40-50 years old. But several laboratories in the area are in excellent condition, e.g. Reproduction Laboratory in the Livestock and Poultry Institute, the Energy and Protein Nutritional Laboratory in the Beltsville Human Nutrition Center. And the U.S. National Arboretum continues to grow in beauty, diversity, research, and public service. In addition, BARC has moved forward in other ways, especially in regard to the environment. First, a wetlands area of high ecological quality is now assured to replace wetlands impaired or lost by the construction of the Metro Beltway Terminal. Second, BARC has initiated an improved procedure, facility, and monitoring program to assure safe use and disposal of toxic and hazardous materials.

1989 was also the year of Beltsville Symposium XIV, "The Rhizosphere and Plant Growth," which informed a large audience and the scientific community of research concerning the plant root zone. Moreover, George Papavizas, distinguished Beltsville scientist and co-chair of Symposium XIV, will serve as "Organizer" of the AAAS session on "Biological Control of Plant Diseases" during the annual meeting in New Orleans on February 15-20, 1990.

So now we've moved to 1990! FAR-B, of course, will have its annual meeting in March. And then there is Beltsville Symposium XV, "Remote Sensing for Agriculture". This symposium will be co-sponsored by Beltsville Area, Agriculture Research Service and NASA Goddard Space Flight Center with the cooperation of Friends of Agricultural Research-Beltsville, Inc. You will find a report on progress by the co-chairs, John Price, Remote Sensing Research Laboratory, Beltsville and Darrel Willilams, NASA-GSFC, later on in this Newsletter.

And finally I'll take a peek into 1991! At the November meeting of the FAR-B Board of Directors we heard about the plans for Beltsville Symposium XVI, Plant Photomorphogenesis, which will take place September 22-27, 1991. The co-chairs, William VanDerWoude and Steven Britz, have written about their plans. You will find their comments on a subsequent page.

So.....Seasons Greetings to each of you.

TED BYERLY, President
FAR-B

BARC SCIENTIST HONORED

At the 1989 Scientist of the Year Ceremony on November 15, Dr. R. Dean Plowman, ARS Administrator, named Roger H. Lawson one of four Outstanding Scientists of the Year. He noted that "Dr. Lawson has helped make U.S. floral growers more competitive at a time when imports of new floral crops are increasing. He very ably leads a national floriculture research program noted for its development of new floral crops, excellent plant virus research, and availability to transfer technology from the laboratory to industry."

Dr. Lawson, a Plant Pathologist, heads the BARC Florist and Nursery Crops Laboratory. He initiated a new crops program including developing new crops for domestic and foreign markets, genetically engineering disease resistance and devising new immunological techniques for plant health. One highlight of his research and leadership is a new dwarf lisianthus that recently won national recognition in the FloraStar Awards program and will soon be introduced as a flowering pot plant and as a bedding plant. He associated a mineral nutrient toxicity with a foliar decline of chrysanthemums that affects some of this economically important cut flower variety. He discovered the viral nature of a serious disease in orchids that makes the flower unmarketable and developed methods for serological detection of the cause of the virus. He also developed monoclonal antibodies to two viruses--carnation etched ring and tulip breaking--that can be used in plant health programs to produce virus-free plants. Under Dr. Lawson's direction, the Florist and Nursery Crops Laboratory was the first to produce a patented product under the 1986 Technology Transfer Act: a test to detect all viruses in the largest group of plant viruses.

Dr. Lawson is a Fellow, American Phytopathological Society; past chairman, American Type Culture Collection Board of Trustees; chairman, National Work Conference on Microbial Collections of Major Importance to Agriculture; member, International Microbial Strain Data Network; and chairman, Ornamentals Virus Working Group of the International Society for Horticultural Science.

A. L. PIRINGER
Vice President, FAR-B

DIRECTOR'S COMMENTS

Dr. R. D. Plowman, the Administrator of ARS, has assigned Dr. Gordon C. Marten as the Acting Associate Director of the Beltsville Area. Dr. Marten reported to Beltsville the last week of October and began his new duties on November 1st. I introduce him to you in a special note following these comments.

The Beltsville Area Director's Office vacated Building 003 November 27. As you may know, Building 003 will undergo major renovation over the next two years as a part of the modernization program at Beltsville. Interior offices, utility systems, and conference room facilities will be upgraded. Badly needed new cafeteria facilities will be included in the lower level. The auditorium will be remodeled, and additional smaller conference rooms will be developed across the lobby from the auditorium. While these renovations are underway, the Area Director and his staff will be relocated on the 4th Floor of the National Agricultural Library. The telephone number (344-3078) will be unchanged.

On October 16, the President signed an order requiring a 5.3 percent across the board reduction in Federal spending to bring it into compliance with the Gramm-Rudman-Hollings deficit reduction law. For the Beltsville Area, this means spending must be cut by about \$4 million this year. Plans are being made to reduce programs and restrain spending to comply with this order. Reduction can be restored only by the Congress.

I would like to add the following to Dr. Piringer's report on the designation of Dr. Roger H. Lawson as an "outstanding ARS Scientist of the Year". The florist and nursery crop industry is rapidly expanding as advanced industrial societies become more and more affluent. The Association of Dutch Flower Auctions, for example, predicts that by 1993, the U.S. will be by far the largest market for cut flowers. We are pleased that Dr. Lawson and the staff of the Florist and Nursery Crops Laboratory are providing effective research support for this important segment of the agricultural industry.

Dr. Gordon C. Marten

Dr. Marten is a long-time member of the Agricultural Research Service team. He joined ARS in 1961 as a Research Agronomist at St. Paul, Minnesota, established a very successful research program in forages, and became Research Leader of the Plant Sciences Research Unit of ARS at St. Paul in 1972. Dr. Marten also held an adjunct appointment as a Professor of Agronomy at the University of Minnesota.

Dr. Marten is a native of Wittenberg, Wisconsin. He received his undergraduate training at the University of Wisconsin and a Ph.D. degree from the University of Minnesota in 1961. Dr. Marten served on the National Program staff of ARS in 1988, and earlier this year, he served as Acting Associate Director of the Midwest Area of ARS.

E. E. FINNEY, JR.
Acting Director, BA

SYMPOSIUM XV

The Second Announcement of BARC Symposium XV, "Remote Sensing for Agriculture", was distributed in early December. Because of the renovation of the BARC auditorium, the meeting will be held at the NASA-Goddard Space Flight Center (GSFC) in Greenbelt, Maryland May 16-18, 1990. These three days precede the IGARSS '90 Symposium which will be held at the University of Maryland on May 21-25, 1990. (The schedule will facilitate attendance at both meetings).

Remote sensing provides a tool for rapid assessment of water resources and crop, forest, range, and wild land conditions nationally and globally. Improvements in sensor technology may, in the future, provide individual farmers with a guide when they make decisions about when to sell or store.

Speakers and subjects will be as follows:

- G. ASRAR, NASA, Washington, DC
Estimation of Potential Productivity of Energy
and Water Limited Ecosystems from Remotely Sensed Data
- E. J. BARRON, The Pennsylvania State University, Univ. Park, PA
The Global Water Cycle and the Earth Observing System
- T. N. CARLSON, Pennsylvania State University, University Park, PA
The Radiometric Temperature of Vegetation Canopies:
The Modeler's View
- J. CIHLAR, F. J. AHERN, and R. J. BROWN, CCRS, Ottawa, Canada,
Monitoring Canadian Vegetation From Space: Results
of Recent Studies
- C. DAUGHTRY, USDA-ARS, Beltsville, MD
Spectral Estimates of Absorbed Radiation
and Phytomass in Plant Canopies
- D. W. DEERING, NASA-GSFC, Greenbelt, MD
Bare Soil and Plant Canopy Bidirectional Reflectances
and Their Relevance in Remote Sensing Applications
- J. DOZIER, University of California, Santa Barbara, CA
Seasonal and Interannual Variation of Snow Albedo in the
Sierra Nevada, Measured from the Landsat Thematic Mapper
- E. T. ENGMAN, USDA-ARS, Beltsville, MD
Application of Microwave Remote Sensing to Water
Resources and Agriculture
- J. H. EVERITT and D. E. ESCOBAR, USDA-ARS, Weslaco, TX
Airborne Video Systems for Agricultural Assessment
- S. GOWARD, University of Maryland, College Park, MD
Primary Production Efficiency - A Concept for Remote
Sensing Research
- G. GUTMAN, NOAA-NESDIS, Washington, DC
Vegetation Indices From AVHRR: An Update and Future
Prospects
- G. GUYOT, INRA, Montfavet, France
Potentials and Limits of Vegetation Indices
- F. HALL, NASA-GSFC, Greenbelt, MD
Remote Sensing of Mass and Energy Exchange Between a
Vegetated Surface and the Atmospheric Boundary Layer
- A. R. HUETE, University of Arizona, Tucson, AZ and



FAR - B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

ANNUAL MEETING

MARCH 1990

The annual meeting of the Friends of Agricultural Research-Beltsville, Inc. will be held on Tuesday, March 13, 1990, at 2 p.m. at the National Visitors Center (formerly the Log Lodge), BARC-East, Beltsville, MD. Guest speaker will be Dr. Essex E. Finney, Jr., newly appointed Director of the Beltsville Agricultural Research Center. We hope you can plan to join us for the meeting. Refreshments and socializing after the meeting.

PRESIDENT'S REPORT

We are especially pleased that Dr. Essex Finney's appointment as Director of the Beltsville Area has been confirmed. Dr. Finney is an informed, efficient administrator and an excellent communicator.

Beltsville Symposium XV, cosponsored by BARC and the NASA-Goddard Space Flight Center (GSFC), will take place at GSFC on May 16-18, 1990. FAR-B members will be welcomed as Symposium participants. A registration form is included on the last page of this Newsletter. This symposium is important for all the world's people and doubly so for farmers, foresters, environmentalists, economists, and other scientists. This symposium is also important to the process of determining the potential of space technology for measurement of the condition of the earth resources - crops, water, snow, range, forest, wild lands, wet lands. Such measurements will provide an improved basis for areas and crops to be planted, products to be stored or marketed, and conservation measures to be implemented. Thus scientists working in agriculture have continuing interest in several areas of biological research, e.g., a recent NASA publication (NRA-90-OSSA-6, Feb 9, 1990) solicits proposals, including basic and applied research directed at obtaining an understanding of the biological effects of gravity in plant and/or animal systems.

On another subject, current and prospective increases in appropriations for the Beltsville Area will be used to renovate and supplement facilities used for research in human nutrition, sustainable agriculture, and protection of crops and the environment.

Remember Earth Day on April 22. The arable land of the earth and the resources of forests, ranges, streams, lakes, and seas must be used --- with reduced pollution, yet efficiently, to provide food, fiber, and desirable habitat for man and animals.

Looking beyond Symposium XV, activities related to Symposium XVI, "Plant Photomorphogenesis" will be increased. Research results in this area, e.g. seed germination and flowering have resulted in wide application.

We urge your attendance at the Annual Meeting of FAR-B to be held on March 13, in the Theatre Room at the National Visitor Center. Following the meeting there will be time for refreshments and socializing. We will also have available copies of the publication "Solving Agricultural Problems With Biotechnology", issued January 1990 and prepared by the Biotechnology Matrix Team of the National Program Staff, ARS, USDA.

TED BYERLY, President

WELCOME TO NEW FAR-B MEMBERS

We wish to welcome several new members who have joined our ranks during 1989 and up to the present time. We are pleased to have you join us and to know that you share in our objectives to support the research and education programs of the Beltsville Agricultural Research Center. Our new members include:

Sustaining Members: Dr. James T. Bahr, FMC Corporation,
Princeton, NJ
Dr. Don J. Heinz, Hawaiian Sugar Planters'
Association, Aiea, Hawaii

Patrons: Dr. Dennis M. Kirven, W. R. Grace &
Company, Fogelsville, PA
Mr. Vincent J. Leahy, Laurel, MD
Dr. Richard J. Marrese, Hoechst-Roussel
Agri-Vet Co., Sommerville, NJ

Associate Members: Dr. Steven J. Britz, BARC
Dr. Howard J. Brooks, BARC
Ms. Margaret A. Blackwell, BARC
Dr. Edward B. Knipling, ARS-NPS
Dr. William J. VanDerWoude, BARC

Personal Members: Ms. Jeannete E. Allen, Seabrook MD
Dr. James R. Dogger, Gore, VA
Dr. Raymond W. Hoecker, Springfield, MO
Dr. William L. Hollis, Beltsville, MD
Bernard M. Leese, Jr., Silver Spring, MD
Dr. Karl H. Norris, Beltsville, MD
Dr. Robert W. Romig, Northrup King Co.,
Minneapolis, MN
Dr. Gail E. Sharp, Sharp Brothers Seed
Company, Healy, KS
Mr. Ed Sims, College Park, MD
Dr. Edward E. Terrell, Silver Spring, MD

Notices will be sent out around the first of April to all of our membership regarding renewal of membership for 1990. Anyone wishing to send in renewals at this time may do so, thus saving us time, postage, and effort!

TED BYERLY, President

DIRECTOR'S COMMENTS

I am pleased to announce that Dr. Judith B. St. John has accepted the position of Deputy Area Director with the responsibility for leadership of the Plant Sciences Institute at Beltsville. Dr. St. John has been serving in this position on an acting basis since last summer. Her appointment became permanent on February 11, 1990.

Dr. St. John has been employed as a Research Plant Physiologist with USDA for the past 23 years. She has a Ph.D. in botany from the University of Florida, where she also served as a Postdoctoral Fellow in the Department of Agronomy. Dr. St. John came to ARS in 1967 and became a member of the Weed Science Laboratory. She was appointed Research Leader in 1986. Her work on the interaction of herbicides with plant lipids gained wide recognition. Her biography is listed in American Men and Women in Science. Dr. St. John brings a wealth of knowledge, experience, energy, and enthusiasm to this assignment. We are indeed fortunate to have a leader of her caliber willing to accept the important responsibilities of this position.

The President released his proposed Federal Budget for Fiscal Year 1991 on January 29. The budget document from OMB shows that funding for the Agricultural Research Service would increase from \$585 million in 1990 to \$623 million in FY 1991. Increased funding is proposed for research on global climate change, crop production systems to minimize adverse impacts on water quality, a coordinated program to map important crop plant genes, plant germplasm preservation and evaluation, enhancement of animal germplasm preservation, improvement of diagnostic methods for animal diseases, and reduction of bacterial and mycotoxin contamination and drug and pesticide residues in foods.

The 1991 request also includes \$16 million for modernization of ARS facilities at the Beltsville Agricultural Research Center. The following projects would be designed or constructed with the proposed increased funds: range 2 greenhouses, swine facility, free stall dairy facility, water treatment plant, electrical distribution system upgrade, and a new laboratory building on BARC-West.

Two major buildings are currently under renovation -- Building 007 (Soils Building) and Building 003 (Administration Building). The Beltsville Area Director's Office is now located on the 4th Floor of the National Agricultural Library Building, while Building 003 is under renovation. Please drop in to say "Hello" when you are in the area.

ESSEX E. FINNEY, JR.
Director, BA

BELTSVILLE RESEARCH - A CONTINUING STORY

USDA, MANUFACTURER WORK ON SAFE PESTICIDE WASTE DISPOSAL

A leading pesticide manufacturer has teamed up with the U.S. Department of Agriculture to further develop a system to safely decontaminate pesticide wastewater in rural and suburban communities.

The portable treatment uses ozone gas coupled with soil microorganisms to break down the unused pesticides before disposal.

Ciba-Geigy Corp. of Greensboro, NC, has entered into a cooperative agreement with USDA scientists who first began developing the treatment. The scientists have applied for a patent on the treatment and equipment.

The goal is to turn unused pesticides into innocuous carbon dioxide rather than convert them to other toxic compounds and burn them, said chemist Cathleen J. Somich of USDA's Agricultural Research Service in Beltsville, MD.

"We don't want to take the risk of substituting air pollution for water pollution," she said.

Steve Dumford, director of new technology and basic research for Ciba-Geigy, said his company is getting ready to start testing a second prototype of the device. "We want to see if it can handle larger volumes of pesticides and higher concentrations," he said.

Although the technology is far from the commercial stage, Dumford envisions the device being transported from farm to farm to treat pesticides and wastewater leftover from cleaning pesticide application equipment. It might be operated by a local government agency, farmer coop or pesticide distributor, he said.

Philip C. Kearney, originator of the treatment at Beltsville, said that this type of device might be used by lawn care companies as well. "It also may one day be scaled-up to handle heavy industrial waste. This would include manufacturing waste from both farm and home use. The idea is to prevent the chemicals from ever entering the nation's waterways," he said.

DON COMIS
DON ELDER
USDA Office of Information

BELTSVILLE SYMPOSIUM XV - "REMOTE SENSING FOR AGRICULTURE"

The fifteenth Beltsville Symposium in Agricultural Research, "Remote Sensing for Agriculture", will be held May 16-18, 1990 at the NASA-Goddard Space Flight Center (GSFC) due to the Beltsville Auditorium renovation. Paper and Poster Sessions will be presented in the GSFC Building 8 Auditorium. Registration (Tuesday evening) and the Symposium Banquet (Thursday evening) will be held at the Sheraton Greenbelt Hotel (formerly Howard Johnson Plaza Hotel), and a mixer will be held Wednesday evening at the GSFC Recreation Center. The following fee schedule applies to FAR-B members only. To register for the symposium, please complete the tear-off form below and provide a check for the appropriate amount made payable to Beltsville Symposium XV/FAR-B, Inc. and send to the address indicated.

JOHN C. PRICE, Co-chairman
Beltsville Symposium XV

Registration Form for FAR-B Members
BELTSVILLE SYMPOSIUM XV
"Remote Sensing for Agriculture"
May 16-18, 1990
Goddard Space Flight Center
Greenbelt, MD

NAME _____
ADDRESS _____
CITY _____ STATE _____ ZIP CODE _____
TELEPHONE _____

(Registration limited to 350 on a first-come basis)

_____	\$25.00	FAR-B Registration (admittance to Paper and Poster sessions only)
_____	\$ 8.00	Mixer Ticket
_____	\$30.00	Banquet Ticket

Send completed registration form and payment to:
Beltsville Symposium Office
Attn: M. Blackwell
Room 330, Building 001, BARC-West
Telephone: 344-5055



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

June 1990

DR. TED BYERLY

Dr. Theodore C. Byerly, a founding Director and, since 1989, the President of the Board of Directors of Friends of Agricultural Research-Beltsville (FAR-B), died May 17. He had spent over 40 years in the U.S. Department of Agriculture as a distinguished scientist, research leader, and administrator of scientific research programs. After his retirement, Dr. Byerly continued his active role in science and in matters concerned with science policy. For example, he held such positions as adjunct Professor, Poultry Science, University of Maryland; consultant with the Winrock International Center of Animal Research; and USDA contractor on "USDA Policy on Carcinogens". He was active in the Associates of the National Agricultural Library, Inc. and a strong supporter of conferences and symposia on science topics, especially the annual Beltsville symposia on agricultural research. In 1972, the USDA gave him a special award "In recognition of his many years of outstanding leadership in the service of agriculture and with gratitude for his dedication and extraordinary intellectual competence as a scientist in the service of man".

In 1929, three years after completing his Ph.D. at the University of Iowa, Dr. Byerly joined the Bureau of Animal Industry at Beltsville. His initial research dealt with the effects of nutrition, genetics, and environment on the hatchability of chicken eggs. His research contributed significantly to increasing hatchability, which provided an annual savings of more than \$60 million to the poultry industry. Then from 1937 to 1941, he was a professor of Poultry Husbandry at the University of Maryland.

In 1941, Dr. Byerly returned to the USDA where he was placed in charge of all poultry research at Beltsville. Under his direction, many major advances were made in poultry science including the discovery of the superiority of selectively bred hybrids in egg and poultry production; development of the Beltsville white turkey; development of the fatherless turkey; and fundamental discoveries related to the identity and functions of vitamin B12, which is nutritionally essential for the survival of newly-hatched chicks. For his pioneering contributions to poultry research, Dr. Byerly was given the Borden Award in 1942 and in 1983 was inducted into the Poultry Science Hall of Fame.

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Subsequently he was appointed Deputy Administrator of ARS (1957); Administrator of The Cooperative State Research Service (1963); and Assistant Director of Science and Education (1969). In these capacities, Dr. Byerly's achievements included more effective coordination of research in production, economics, and genetics, including international and environmental quality programs related to agricultural science. Dr. Byerly was instrumental in the formation of the American Institute of Biological Sciences, of which he was a founder, past Chairman, and holder of its Distinguished Service Award for coordination of environmental and agricultural research. As Chairman of the Division of Biology and Agriculture of the National Research Council (1963-65), Dr. Byerly was able to achieve a broader understanding and more active support of common goals of the academic community, State Experiment Stations, and ARS and to highlight their worldwide importance.

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Two BARC retirees, Dr. T. C. Byerly and Dr. George F. Sprague, were among the persons named June 12 to the ARS Scientist Hall of Fame. The ceremony was held at the U.S. National Arboretum after a reception and dinner there. Dr. R. D. Plowman, ARS Administrator, made the presentations.

Dr. Byerly was cited "for extraordinary intellectual contributions as a biologist, research leader, and administrator of scientific programs of major importance to agriculture". (Dr. Byerly's son, David, accepted the award). His previous recognition at national/international levels includes The Borden Award for Poultry Research (1942); USDA Superior Service Award (1953); Member, U.S. National Committee for UNESCO (1954-60); Chairman, Division of Biology and Agriculture, National Research Council (1963-65); USDA Distinguished Service Award (1965); Chairman, U.S. Delegation to International Conference on Rational Use of the Biosphere (1968-79); US-Kenya Advisory Committee on Agriculture in Kenya (1969); Advisor to U.S. Delegation, UN Conference on Human Environment, Stockholm (1972); USDA Special Award for Outstanding Leadership in Science in the Service of Mankind (1972); US-USSR Joint Committee on Cooperation in Fields of Environmental Protection (1973); Distinguished Service Award, American Institute of Biological Sciences (1979); and Hall of Fame, Poultry Science Historical Science (1983).

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We are deeply saddened by the passing of Dr. Ted Byerly, who had a distinguished career as a scientist and administrator within USDA. Dr. Byerly was a charter member of FAR-B. BARC truly had a dedicated friend and supporter in Dr. Byerly. Earlier this year, Dr. R. D. Plowman, Administrator of ARS, wrote to Dr. Byerly, advising him of his selection to enter the ARS Science Hall of Fame. This ceremony took place at the National Arboretum on the evening of June 12, 1990.

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I am pleased to report that Dr. Plowman has confirmed the permanent appointment of Dr. Gordon Marten to the position of Associate Director of the Beltsville Area. Dr. Marten came to Beltsville from the ARS Plant Sciences Research Unit at St. Paul, Minnesota, last October. Thereafter, he had been in an "Acting" capacity, but his appointment became permanent on April 23, 1990. Dr. Marten brings many years of research leadership experience and enthusiasm to this assignment. We are fortunate to have him in this key leadership position.

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The minutes of the 1989 meeting were read and approved. Treasurer Frank Longen reported the year-end status of the two audit-approved bank accounts -- the Regular Account (\$11,224.59) and the Conference and Symposia Account (\$25,158.50).

Membership Committee Chairman, Al Piringer, reported a total of 131 members including 3 sustaining members, 11 patrons, 81 personal members, and 36 associate members.

Dr. Byerly introduced Dr. Essex E. Finney, Jr., Beltsville Area Director, who presented three new managers at the Beltsville Agricultural Research Center: Dr. Gordon C. Marten, Acting Associate Area Director; Dr. Judy St. John, then Research Leader, Plant Sciences Institute; and Wiz Horner, Head, Facilities Management and Operations Divisions. He also announced that Dr. Byerly would be one of five recipients of the ARS Science Hall of Fame Award for 1990. Other honorees would be Dr. G. F. Sprague (Beltsville), Dr. G. E. Dickinson (Lincoln, Nebraska), Dr. V. A. Johnson (Lincoln, Nebraska), and Dr. R. W. Holly (Ithaca, New York).

Dr. Finney noted that in Fiscal Year 90 there is a 3.6 million increase for ARS programs and that modernization Budget proposals for FY 1991, made public in January, provide about \$38 million in program increases for ARS. Other budgeted increases include funding for the continued modernization of Beltsville (900 buildings and 65 miles of road) set at \$20 million a year for 10 years; and new construction of buildings to take place over the next 14 years at a cost of \$45 million.

Dr. John Price, Chairman, of the mid-May 1990 Beltsville Symposium XV, "Remote Sensing for Agriculture" was then introduced. Dr. Price spoke about the Symposium program. Dr. Finney then explained that Symposium XVI, "Photomorphogenesis in Plants: Emerging Strategies for Crop Improvement", will take place September 22-27, 1991. Co-chairmen are to be Dr. William VanDerwoude and Dr. Steven Britz, both of the Plant Photobiology Laboratory, Plant Sciences Institute, Beltsville.

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As a result of FAR-B's efforts, a number of companies contributed generously in support of the symposium.

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FAR-B's OUTSTANDING SCIENTIST AWARD

A highlight of the Symposium XV banquet on May 17 was the acceptance by Dr. Archibald B. Park of FAR-B's Outstanding Scientist Award for his "pioneering, uniquely valuable contributions to the development of the world's first earth sensing multispectral satellite, now known as Landsat, which has opened new vistas in agricultural remote sensing". This is the fourth year FAR-B has made such a presentation to retirees who have made significant contributions during their careers in an area of expertise related to the subject of that year's symposium. FAR-B thereby lauded his genius, not only in recognizing the possibility of using satellite imaging of the Earth to identify the nature and condition of vegetation worldwide, but also in insisting on and participating in the development of the instrumentation and technology necessary to accomplish it. The key instrument, an imaging radiometer now known as MSS (Multispectral Scanner), has been flown on the entire series of Earth Resources Satellites. A half dozen years ago Dr. Park was given the William T. Pecora award jointly by the Department of the Interior and the National Aeronautics and Space Administration (NASA) in recognition of that effort.

Since receiving his Doctor of Veterinary Medicine degree from the University of Toronto, Dr. Park's career has included service with General Electric, Earth Satellite Corporation, NASA, and USDA. While he was working in the Agricultural Research Service, he became interested in the application of the technology of advanced information systems to the inventory and management of natural resources. As a result, he became responsible for all collaborative NASA-USDA programs in this field and as a logical consequence, was eventually named Chief of NASA's Earth Resources Survey Program.

Dr. Park is currently Assistant Secretary, Animal Health and Consumer Services, Maryland Department of Agriculture, where he oversees the Boards responsible for animal health, meat and poultry, weights and measures, horse riding stables, and veterinary medicine.

TED BYERLY and GEORGE IRVING

EARTH DAY AT THE NATIONAL VISITOR CENTER

The absolute highlight of this spring at the National Visitors Center was the Earth Day celebration. Special students from Swansfield Elementary School, Columbia, MD helped our tree planting instructors plant 10 trees on the Center grounds. And instructors took special care to explain just how to plant a tree. Instructors included Duncan Kerr of Behnke's; Bill Brumbley, Maryland Forest, Park and Wild Life Service; and Dr. Ned Garvey, head of the National Arboretum's Germplasm Program. John Kucharski, ARS photographer, took many candid pictures of the students hard at work.

Dr. Essex Finney, BARC Director, and Dr. Lowell Owens of the Beltsville Area Ecology committee both spoke on the importance of conserving the environment. Maryland State Senator Arthur Dorman and State Delegate James Rosapepe attended. A special visitor, John Mitchell, was one of the original members of the Civilian Conservation Corps which helped build the Log Lodge, as it was then known.

STEVEN BERBERICH

MARTIN G. WEISS - 1911-1990

Dr. Martin G. Weiss, a charter member of FAR-B, did his undergraduate and graduate work at Iowa State University, Ames. He received his Ph.D. in genetics and plant breeding in 1941. From 1936 to 1942, he was in charge of soybean improvement at the U.S. Regional Soybean Laboratory, Urbana, Ill. where he developed the three soybean varieties from which more than 50 percent of the nation's soybeans were later produced. The most widely grown variety was "Hawkeye".

After service in the Army's Field Artillery Branch from January 1942 to December 1945, he returned to Iowa State where he worked as researcher and as professor of field crops from 1945 to 1950. Then in 1950, when he joined ARS as principal agronomist overseeing soybean research, he began his 23-year career with the USDA at Beltsville. In 1953 he was promoted to Chief of the Field Crops Branch where he planned and oversaw research programs for the important field crops. In 1957 he became associate director of the Crops Research Division and assisted in the overall planning, coordination, and direction of the national program of crops research. Subsequently (in 1964), Dr. Weiss became assistant to the administrator for the Agricultural Research Service and in 1971 became director of ARS's International Programs Division which was headquartered in New Delhi and Rome. In this capacity he reviewed many research programs in eastern Europe and the Far East which were sponsored by ARS under his direction. In 1973, he retired from ARS.

After retirement Dr. Weiss continued to work with the International Commission for the Nomenclature of Cultivated Plants (he was a charter member) and participated in the publication of the commission's International Code. He also spent two years (1974-1976)

in Iran as a consultant for the Development and Resources Corporation Teheran, helping to determine the deficiencies and needs of that country's agricultural program. In addition, in 1977, as consultant to the Office of Technology Assessment, U.S. Congress, he worked with industry and public agencies concerned with recombinant DNA research to determine the potential to attract greater industry investment; he also analyzed pending regulatory bills as to their effect on industry operations. At the same time, as consultant to the Food and Agricultural Organization of the United States, Rome, Dr. Weiss evaluated the progress of an ongoing FAO-sponsored research project in Ethiopia and helped develop recommendations for its future direction.

JUDY McBRIDE

RUTH L. BUSBEY - 1909-1990

Ruth L. Busbey, Charter Member of FAR-B and patron, received a B.S. and an M.S. in Chemistry from the University of Maryland while working part time in the USDA Bureau of Entomology which, in those years, maintained a clinical laboratory at the College Park campus. Her entire professional career was subsequently spent with the Bureau and its successor, the Entomology Research Division. Thus in 1938, she transferred to Whittier, CA where she and her colleagues tested the effects of cyanide and cyanide derivatives on red scale, an insect infesting citrus trees. And six years later, she returned to Maryland where she worked at the Pesticide Chemicals Research Branch of the Bureau, which was now located at the Beltsville Agricultural Research Center. There, in the late 40's, Mrs. Busbey was asked to prepare a report concerned with the manpower and funding that would be needed to accomplish a major realignment in the Agricultural Research Service. As a result of her effort, she was made assistant to the Branch Chief and presently Deputy Chief of the Branch.

This was the time when insecticides were becoming important. So after the Entomology Research Division was created in 1950, more than 45,000 compounds would be evaluated as insect attractants, repellants, or insecticides at the more than 60 field stations of the Pesticide Chemicals Research Branch. Also liaison was established with the National Institutes of Health so as to further determine the activity of these materials, especially against cancer. Mrs. Busbey had a key role in handling the resulting reports and evaluating the findings. This was also the period when she began her study of the Russian language (the Russians were highly active in this field of chemistry) and received an M.S. in Russian. Subsequently she translated many articles and a voluminous Russian work, "Biological Agents for Plant Protection". Then in 1966, she was sent to Russia by the USDA to visit institutes there engaged in pesticide research.

After her retirement in 1969, Mrs. Busbey served (1980-1988) as the secretary of the local chapter of the National Association of Retired Federal Employees. She was also a founding member, member of the board, and vice-president (three years) of Koininia Agapes, Inc., a group set up in 1960 to help foreign students studying in this country, especially at the University of Maryland. In 1988 she helped organize the Retired Chemists Group of the Chemical Society of Washington, served as its President in 1989, and was serving as its secretary in 1990.

DRS. IRWIN HORNSTEIN and PAUL H. TERRY

BELTSVILLE RESEARCH, A CONTINUING STORY

Multicolored Easter Lilies Year Round

No longer must lilies grown in the field. And they are no longer just pure white. They now come in brilliant red, creamy yellow, and royal lavender. Also they now can be brought to flower in 280 days instead of two to three years.

All this miraculous change is the result of a technique of sequential temperature changes developed by Mark S. Roh, a horticulturist at the Florist and Nursery Crops Laboratory at BARC.

Roh's first experimental lily bulbs were no bigger than peas; they came from Korea in 1981. Since 1983, he has been testing his temperature procedure on hybrids from these bulbs. He now has nine varieties that he has brought to bloom by using his procedure. His varieties include both Easter lilies, Lilium longiflorum, and Asiatic hybrid lilies, Lilium elegans.

Roh doesn't begin with regular lily bulbs. He uses bulbils, tiny bulbs that appear, after flowering, on the stem of the plant where the leaves sprout. (Not all commercial hybrid lilies produce bulbils naturally). The bulbils are packed in moist peat moss and then subjected to alternating low-high-low temperatures in the greenhouse. Next Roh transfers the bulbils to 4-or 5-inch pots filled with a soil-peat-perlite mixture. About 100 days from the first sign of shoots, two to four beautiful lilies on strong stems bloom in each pot.

An important advantage of the new treatment is the complete elimination of the field phase of growing lilies. The controlled greenhouse growth reduces or eliminates major threats such as viruses, soilborne fungal diseases, insect infestation, and summer sprouting; all of which plague lilies growing in the field. Thus lilies can now be available throughout the year, not just around the Easter season.

DORIS SANCHEZ, ARS

Another Research Highlight

Steven Sinden and Ken Deahl (Vegetable Laboratory) and Jim Saunders (Germplasm Quality and Enhancement Laboratory) are developing potatoes that produce a natural insect repellent in their leaves. Once it was found that wild potato varieties are naturally resistant to the Colorado potato beetle, this resistance was traced to the production of leptine in the leaves. Now these scientists have developed cell fusion techniques that make it possible to combine genetic material from a wild variety with the genetic material of a cultivated variety to obtain plants that produce leptine. This is another successful effort aimed at reducing the need for pesticides.



FAR - B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

June 1990

DR. TED BYERLY

Dr. Theodore C. Byerly, a founding Director and, since 1989, the President of the Board of Directors of Friends of Agricultural Research-Beltsville (FAR-B), died May 17. He had spent over 40 years in the U.S. Department of Agriculture as a distinguished scientist, research leader, and administrator of scientific research programs. After his retirement, Dr. Byerly continued his active role in science and in matters concerned with science policy. For example, he held such positions as adjunct Professor, Poultry Science, University of Maryland; consultant with the Winrock International Center of Animal Research; and USDA contractor on "USDA Policy on Carcinogens". He was active in the Associates of the National Agricultural Library, Inc. and a strong supporter of conferences and symposia on science topics, especially the annual Beltsville symposia on agricultural research. In 1972, the USDA gave him a special award "In recognition of his many years of outstanding leadership in the service of agriculture and with gratitude for his dedication and extraordinary intellectual competence as a scientist in the service of man".

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FAR-B's OUTSTANDING SCIENTIST AWARD

A highlight of the Symposium XV banquet on May 17 was the acceptance by Dr. Archibald B. Park of FAR-B's Outstanding Scientist Award for his "pioneering, uniquely valuable contributions to the development of the world's first earth sensing multispectral satellite, now known as Landsat, which has opened new vistas in agricultural remote sensing". This is the fourth year FAR-B has made such a presentation to retirees who have made significant contributions during their careers in an area of expertise related to the subject of that year's symposium. FAR-B thereby lauded his genius, not only in recognizing the possibility of using satellite imaging of the Earth to identify the nature and condition of vegetation worldwide, but also in insisting on and participating in the development of the instrumentation and technology necessary to accomplish it. The key instrument, an imaging radiometer now known as MSS (Multispectral Scanner), has been flown on the entire series of Earth Resources Satellites. A half dozen years ago Dr. Park was given the William T. Pecora award jointly by the Department of the Interior and the National Aeronautics and Space Administration (NASA) in recognition of that effort.

Since receiving his Doctor of Veterinary Medicine degree from the University of Toronto, Dr. Park's career has included service with General Electric, Earth Satellite Corporation, NASA, and USDA. While he was working in the Agricultural Research Service, he became interested in the application of the technology of advanced information systems to the inventory and management of natural resources. As a result, he became responsible for all collaborative NASA-USDA programs in this field and as a logical consequence, was eventually named Chief of NASA's Earth Resources Survey Program.

Dr. Park is currently Assistant Secretary, Animal Health and Consumer Services, Maryland Department of Agriculture, where he oversees the Boards responsible for animal health, meat and poultry, weights and measures, horse riding stables, and veterinary medicine.

TED BYERLY and GEORGE IRVING

EARTH DAY AT THE NATIONAL VISITOR CENTER

The absolute highlight of this spring at the National Visitors Center was the Earth Day celebration. Special students from Swansfield Elementary School, Columbia, MD helped our tree planting instructors plant 10 trees on the Center grounds. And instructors took special care to explain just how to plant a tree. Instructors included Duncan Kerr of Behnke's; Bill Brumbley, Maryland Forest, Park and Wild Life Service; and Dr. Ned Garvey, head of the National Arboretum's Germplasm Program. John Kucharski, ARS photographer, took many candid pictures of the students hard at work.

Dr. Essex Finney, BARC Director, and Dr. Lowell Owens of the Beltsville Area Ecology committee both spoke on the importance of conserving the environment. Maryland State Senator Arthur Dorman and State Delegate James Rosapepe attended. A special visitor, John Mitchell, was one of the original members of the Civilian Conservation Corps which helped build the Log Lodge, as it was then known.

STEVEN BERBERICH

MARTIN G. WEISS - 1911-1990

Dr. Martin G. Weiss, a charter member of FAR-B, did his undergraduate and graduate work at Iowa State University, Ames. He received his Ph.D. in genetics and plant breeding in 1941. From 1936 to 1942, he was in charge of soybean improvement at the U.S. Regional Soybean Laboratory, Urbana, Ill. where he developed the three soybean varieties from which more than 50 percent of the nation's soybeans were later produced. The most widely grown variety was "Hawkeye".

After service in the Army's Field Artillery Branch from January 1942 to December 1945, he returned to Iowa State where he worked as researcher and as professor of field crops from 1945 to 1950. Then in 1950, when he joined ARS as principal agronomist overseeing soybean research, he began his 23-year career with the USDA at Beltsville. In 1953 he was promoted to Chief of the Field Crops Branch where he planned and oversaw research programs for the important field crops. In 1957 he became associate director of the Crops Research Division and assisted in the overall planning, coordination, and direction of the national program of crops research. Subsequently (in 1964), Dr. Weiss became assistant to the administrator for the Agricultural Research Service and in 1971 became director of ARS's International Programs Division which was headquartered in New Delhi and Rome. In this capacity he reviewed many research programs in eastern Europe and the Far East which were sponsored by ARS under his direction. In 1973, he retired from ARS.

After retirement Dr. Weiss continued to work with the International Commission for the Nomenclature of Cultivated Plants (he was a charter member) and participated in the publication of the commission's International Code. He also spent two years (1974-1976)

in Iran as a consultant for the Development and Resources Corporation Teheran, helping to determine the deficiencies and needs of that country's agricultural program. In addition, in 1977, as consultant to the Office of Technology Assessment, U.S. Congress, he worked with industry and public agencies concerned with recombinant DNA research to determine the potential to attract greater industry investment; he also analyzed pending regulatory bills as to their effect on industry operations. At the same time, as consultant to the Food and Agricultural Organization of the United States, Rome, Dr. Weiss evaluated the progress of an ongoing FAO-sponsored research project in Ethiopia and helped develop recommendations for its future direction.

JUDY McBRIDE

RUTH L. BUSBEY - 1909-1990

Ruth L. Busbey, Charter Member of FAR-B and patron, received a B.S. and an M.S. in Chemistry from the University of Maryland while working part time in the USDA Bureau of Entomology which, in those years, maintained a clinical laboratory at the College Park campus. Her entire professional career was subsequently spent with the Bureau and its successor, the Entomology Research Division. Thus in 1938, she transferred to Whittier, CA where she and her colleagues tested the effects of cyanide and cyanide derivatives on red scale, an insect infesting citrus trees. And six years later, she returned to Maryland where she worked at the Pesticide Chemicals Research Branch of the Bureau, which was now located at the Beltsville Agricultural Research Center. There, in the late 40's, Mrs. Busbey was asked to prepare a report concerned with the manpower and funding that would be needed to accomplish a major realignment in the Agricultural Research Service. As a result of her effort, she was made assistant to the Branch Chief and presently Deputy Chief of the Branch.

This was the time when insecticides were becoming important. So after the Entomology Research Division was created in 1950, more than 45,000 compounds would be evaluated as insect attractants, repellants, or insecticides at the more than 60 field stations of the Pesticide Chemicals Research Branch. Also, liaison was established with the National Institutes of Health so as to further determine the activity of these materials, especially against cancer. Mrs. Busbey had a key role in handling the resulting reports and evaluating the findings. This was also the period when she began her study of the Russian language (the Russians were highly active in this field of chemistry) and received an M.S. in Russian. Subsequently she translated many articles and a voluminous Russian work, "Biological Agents for Plant Protection". Then in 1966, she was sent to Russia by the USDA to visit institutes there engaged in pesticide research.

After her retirement in 1969, Mrs. Busbey served (1980-1988) as the secretary of the local chapter of the National Association of Retired Federal Employees. She was also a founding member, member of the board, and vice-president (three years) of Koininia Agapes, Inc., a group set up in 1960 to help foreign students studying in this country, especially at the University of Maryland. In 1988 she helped organize the Retired Chemists Group of the Chemical Society of Washington, served as its President in 1989, and was serving as its secretary in 1990.

DRS. IRWIN HORNSTEIN and PAUL H. TERRY

BELTSVILLE RESEARCH, A CONTINUING STORY

Multicolored Easter Lilies Year Round

No longer must lilies grown in the field. And they are no longer just pure white. They now come in brilliant red, creamy yellow, and royal lavender. Also they now can be brought to flower in 280 days instead of two to three years.

All this miraculous change is the result of a technique of sequential temperature changes developed by Mark S. Roh, a horticulturist at the Florist and Nursery Crops Laboratory at BARC.

Roh's first experimental lily bulbs were no bigger than peas; they came from Korea in 1981. Since 1983, he has been testing his temperature procedure on hybrids from these bulbs. He now has nine varieties that he has brought to bloom by using his procedure. His varieties include both Easter lilies, Lilium longiflorum, and Asiatic hybrid lilies, Lilium elegans.

Roh doesn't begin with regular lily bulbs. He uses bulbils, tiny bulbs that appear, after flowering, on the stem of the plant where the leaves sprout. (Not all commercial hybrid lilies produce bulbils naturally). The bulbils are packed in moist peat moss and then subjected to alternating low-high-low temperatures in the greenhouse. Next Roh transfers the bulbils to 4-or 5-inch pots filled with a soil-peat-perlite mixture. About 100 days from the first sign of shoots, two to four beautiful lilies on strong stems bloom in each pot.

An important advantage of the new treatment is the complete elimination of the field phase of growing lilies. The controlled greenhouse growth reduces or eliminates major threats such as viruses, soilborne fungal diseases, insect infestation, and summer sprouting; all of which plague lilies growing in the field. Thus lilies can now be available throughout the year, not just around the Easter season.

DORIS SANCHEZ, ARS

Another Research Highlight

Steven Sinden and Ken Deahl (Vegetable Laboratory) and Jim Saunders (Germplasm Quality and Enhancement Laboratory) are developing potatoes that produce a natural insect repellent in their leaves. Once it was found that wild potato varieties are naturally resistant to the Colorado potato beetle, this resistance was traced to the production of leptine in the leaves. Now these scientists have developed cell fusion techniques that make it possible to combine genetic material from a wild variety with the genetic material of a cultivated variety to obtain plants that produce leptine. This is another successful effort aimed at reducing the need for pesticides.

FAR-B NEWSLETTER



Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

September/October 1990

PRESIDENT'S REPORT

We were surprised by Dr. "Waldy" Klassen's retirement in August. His exceptional accomplishments as scientist, counselor, and administrator are renowned. You will find these detailed in the following comments of Dr. Howard Brooks, NPS. In addition, Waldy conceived the idea of and assisted in the creation of the Friends of Agricultural Research-Beltsville. The FAR-B Board has, therefore, designated Dr. Klassen FAR-B's first Honorary Lifetime Member.

At the October meeting of FAR-B's Board of Directors, when the resignation of Maggie Blackwell, the Board Secretary was announced, it was decided that a letter of appreciation would be drafted by George Irving and sent by the Board president to thank Maggie for a job well done. Dr. William A. Bailey is acting as interim Board secretary until a new secretary has been assigned to take over for Maggie.

The June Newsletter reported the death of Dr. Theodore C. Byerly in May of this year. Therefore, at the subsequent Board meetings, it was voted that Dr. Al Piringer, Vice President, would succeed to the Presidency and that there would be a temporary appointment of one person to the Board until the 1991 elections.

Since 1976, annual international symposia have been held in May at Beltsville. Each has been concerned with a topic of importance to agricultural research and has involved an area in which Beltsville scientists are making major contributions. Members of FAR-B continue to actively cooperate in organizing and supporting the concept. Thus the 1991 Beltsville symposium will emphasize light regulation of plant growth and development and is entitled "Symposium XVI -- Photomorphogenesis in Plants: Emerging Strategies for Crop Improvement." You will find details about the plans elsewhere in this Newsletter in a report by Dr. VanDerWoude, a symposium co-chairman. As Dr. VanDerWoude notes, the year 1991 will mark the 40th anniversary of the onset of phytochrome research at Beltsville. In 1951, Beltsville scientists discovered the phenomenon of red-far red reversibility of photoresponses and predicted the existence of photoreversible photoreceptors. Approximately 2 decades of research at Beltsville by numerous American and foreign scientists led ultimately to the isolation of the responsible pigment they named phytochrome. Note that the customary mid-May meeting time has been reprogrammed to September 22-27, 1991, to accommodate the European Photomorphogenesis Group, many of them Beltsville "alumni," and to facilitate the joint scientific celebration of the ARS/USDA phytochrome anniversary.

ALBERT A. PIRINGER

DR. WALDEMAR KLASSEN

Dr. Waldemar Klassen, better known as Waldy, a former Director of BARC, retired from Federal service on August 3.

Waldy joined ARS in 1965 as an insect geneticist at Fargo, North Dakota, where he became a Research Leader in 1967. In 1971, he served as acting Assistant Director, Entomology Research Division, and then as Assistant to the ARS Deputy Administrator, Plant and Entomological Sciences. From 1972 to 1983, Waldy served as National Program Leader, Crop Protection, on the ARS National Program Staff. Following his NPS stint, he served from 1983 to 1988 as Director of the Beltsville Area where he was instrumental in initiating the Renaissance 93 program to restore and upgrade BARC and the U.S. National Arboretum. In his role as ARS Associate Deputy Administrator since July 1988, Waldy has provided leadership in setting directions and coordinating national research programs in plant and natural resource sciences. Waldy is the author of more than 120 scientific publications and has been active on the U.S.-Mexico Screwworm Commission, the Standing Committee of the International Congress of Plant Protection, and the International Congress of Entomology. In 1989, he received the President's Meritorious Executive Award.

Waldy has accepted a contract with the Joint Division for the Application of Nuclear Techniques in Agriculture with the FAO International Atomic Agency, Vienna, Austria. His address there is Wagramerstrasse 5, P.O. Box 100, A-1400, Vienna, Austria.

HOWARD BROOKS

BELTSVILLE SYMPOSIUM XVI

Planning for the 1991 Beltsville Symposium, "Photomorphogenesis in Plants: Emerging Strategies for Crop Improvement," is well under way. In view of the ongoing renovation of Building 003 and the auditorium, the symposium will be held at the Center of Adult Education at the University of Maryland in College Park, September 22-27, 1991. The European Photomorphogenesis Group will participate jointly in the symposium in recognition of the 40th anniversary of the inception of phytochrome research at Beltsville.

The symposium will begin with the recognition of and comments by several "phytochrome pioneers." Subsequent sessions will include the following topics for which selected lead-off speakers are now being contacted:

1. Phytochrome function in the natural environment
2. Photoperiodism
3. Blue light photoreception, photoperiodism, and UV photoreception
4. Phytochrome mutants and transgenic plants
5. Phytochrome regulated gene expression
6. Light-mediated signal transduction
7. Phytochrome structure and properties
8. Agricultural opportunities and future research directions

As in the past, FAR-B will contact private and commercial organizations to request assistance for the support of travel for speakers and students. Member suggestions for such contacts for this symposium are welcome. Symposium co-chairmen are William J. VanDerWoude and Steven J. Britz, Climate Stress Laboratory, USDA-ARS, Building 046A, Beltsville Agricultural Research Center, Beltsville, MD 20705, telephone 301/344-3607, FAX 301/344-4626.

W. K. VANDERWOUDE

DIRECTOR'S COMMENTS

Dr. Waldemar Klassen, former Director of the Beltsville Area, retired from ARS on August 3, 1990. About 150 friends and associates attended a special dinner for Waldy and his wife, Betty, at the Golden Bull Restaurant on the evening of August 16. Dr. Klassen was Director of Beltsville from 1983 to 1988 and led the initiative to upgrade and modernize the facilities and programs at BARC. The President's FY '91 budget includes \$16 million to continue the modernization program that was started in 1986. Dr. Klassen is now working with the International Atomic Energy Agency in Vienna, Austria.

As you drive by the Center on Route 1, you will note that good progress is being made in renovating the Administration Building (Building 003). The building has been gutted inside and a new roof and windows have been installed. All new utilities will be installed -- electrical systems, new plumbing and water pipes and fixtures, new air-conditioning and ventilation equipment, -- and there will be a new cafeteria and conference room facilities on the ground level. The building should be completed by the summer of 1991. We will plan a special ceremony next year when the renovation is completed.

Dr. John Neiderhauser, an internationally renowned potato breeder and researcher, has been selected to receive the 1990 World Food Prize. Dr. Neiderhauser and Dr. Norman Borlaug, the Nobel Prize laureate, visited BARC on the morning of Friday, October 19, 1990. Also, Dr. Neiderhauser is a close colleague of a number of scientists in the Vegetable Laboratory at Beltsville; he visited with them concerning recent developments in potato research. During the afternoon, ARS and the University of Maryland co-sponsored a luncheon, seminar, and reception at the University on the College Park campus.

FAR-B members will be interested to know that another ARS scientist received the prestigious Alexander vonHumbolt Award. Dr. William L. Orgen, who is stationed at Urbana, Illinois, was so honored in Washington, D.C., on October 17, 1990. He is being recognized for his pioneering contributions in the field of photosynthesis research. Dr. Orgen is a past winner of the ARS Scientist of the Year Award in 1984. Previous vonHumbolt Award winners are Karl H. Norris and Ted Diener, both of whom have now retired from ARS, but are still active in research.

Some of you may be following reports in the newspapers about the new Metrorail line that will be coming to Greenbelt in 1993. The Greenbelt Station will be inside (south) of the Beltway. However, a storage and inspection yard will be located on BARC land north of the Beltway.

The Center has agreed to sell METRO about 70 acres of land bounded roughly by the Beltway on the south, CSXT railroad tracks on the west, Sunnyside Avenue on the north, and Indian Creek on the east. About 15 acres are wetlands. Construction could adversely affect some of the wetlands. Federal regulations require that two acres of wetland must be recreated elsewhere for each one acre destroyed.

Lowell Owens chairs the BARC Ecology Committee. His committee has been consulting with METRO officials on other sites at BARC that lend themselves to new wetland expansion. The BARC Ecology Committee plays an important role in providing advice on how to best protect the fragile ecology on the Center. BARC currently has about 1500 acres of wetlands.

ESSEX E. FINNEY, JR.

BARC LAND MANAGEMENT

The National Capitol Planning Commission (NCPC) requires ARS to update the Land Use Master Plan for the Beltsville Agricultural Research Center every 10 years. A revised Master Plan needs to be submitted for approval in 1992. With this goal in mind, a BARC Land Management/Use Committee was appointed in February 1990. The Committee was specifically asked to consider current and projected land uses at Beltsville and to develop an overall long-range land management plan as a basis for updating the existing BARC Master Plans.

The Committee has met six times since its inception and issued two quarterly reports. Special attention is being given to the development of criteria for considering requests from other scientific organizations for the use of BARC land, buffer zone definition and development, classification of pressures for use of land, historical data base acquisition and housing, environmental issues, roads and traffic, experimental land needs, land needs for animal feed supply, a boundary survey contract, and a Master Plan contract.

The Associate Area Director, G. C. Marten, is chairing the Committee, and the Deputy Area Director for Facilities Management and Operations, W. G. Horner, is the Vice Chair. Also serving on the Committee are J. B. St. John, T. J. Sexton, P. C. Kearney, R. J. Gerrits, L. D. Owens, M. Faust, C. V. Bowie, E. Reilly, T. Badger, and K. A. Hummel. The Committee views BARC as a dynamic community that will benefit from a long range plan for its total land base. The Modernization Study, ARS Strategic Plan, and BARC Master Plan will all be considered in the development of future land use decisions. A complete perimeter survey of BARC is planned to aid these decisions.

GORDON C. MARTEN

SCIENTIST OF THE YEAR AWARD

Jitender P. Dubey, Research Microbiologist, Zoonotic Diseases Laboratory, Livestock and Poultry Sciences Institute, has been selected as the Beltsville Area Scientist of the Year for 1990. Dr. Dubey has distinguished himself as a leader in parasitology research nationally and internationally. He is especially well known for his research on Toxoplasma, a protozoan parasite that infects many domestic animals, cattle, swine, sheep, goats and horses, resulting in disease and substantial economic losses. He has documented the complex life cycle of the parasite, studied its epidemiology in livestock, and developed methods for rendering meat products noninfectious from the standpoint of public health.

Dr. Dubey's research extends broadly beyond his contributions on toxoplasmosis. For example, he recently discovered a new genus of parasites (Neospora) of potentially great economic importance. He has developed a diagnostic test to detect infections in animals and man and is assisting the State of California in diagnosing an outbreak in dairy cattle.

Dr. Dubey received a Ph.D. from the School of Medicine, University of Sheffield, England, in 1966. He worked at Montana State University prior to joining ARS at Beltsville in 1982. His research is documented in over 350 publications. Dr. Dubey has received a number of prestigious awards, including the Distinguished Veterinary Parasitologist Award from the American Association of Veterinary Parasitology. We are delighted to have him as a member of the Beltsville community of scientists.

EARLY CAREER AWARD

This year, ARS has established a new award to recognize researchers who have achieved unusual success in the early stages of their professional endeavors. This award has been designated as the ARS Early Career Research Scientist Award.

Nancy Miller-Ihli, Research Chemist, Nutrient Composition Laboratory, BHNRC, has been selected as the Beltsville Area Early Career Research Scientist for 1990. Dr. Miller-Ihli received her Ph.D. in analytical chemistry from the University of Maryland in 1982. Soon thereafter she joined ARS at Beltsville. She is the author of more than 80 publications, patents, and abstracts dealing with atomic spectroscopy, instrumentation, computer techniques, analytical methodology, statistics, and food analysis. One of her significant contributions was the development of an innovative method for introducing solids into the graphite furnace of atomic absorption instruments for mineral analysis. Her technique saves time and reduces the chance of sample contamination. The Perkin-Elmer Corporation has been licensed to use and further develop this new technology.

Dr. Miller-Ihli has made additional contributions to the improvement of the quality of food composition data, including the development of several reference foods needed for quality control programs nationwide. She recently was elected Governing Board Chairperson of the Federation of Analytical Chemistry and Spectroscopy Societies. Dr. Miller-Ihli will be a candidate along with nominees from the seven other Areas for the Agency-wide ARS Early Career Research Scientist Award.

THE NATIONAL VISITOR CENTER

In July of this year, the National Visitor Center at Beltsville set an all time 1-month record of nearly 2500 visitors. And in June, about 60 highly motivated science students from high schools across Pennsylvania (part of the Pennsylvania State University's Governor's School for Agricultural Sciences) were greeted by Administrator R. Dean Plowman. All summer and fall, there has been a rewarding trend of such out-of-Maryland programs for science students and teachers.

Another exciting visit was that of the BioScience Safari of New Jersey science teachers sponsored by the Steven's Institute of Hoboken, New Jersey. This Safari has a 5-year \$1 million grant from the Hughes Foundation. After visiting with the National Visitor Center staff last winter, the Safari coordinators spent a week in July visiting ARS and three other Federal research facilities. The teacher committee then returned to an all-New Jersey Conference to inject ARS into the curricula of that State.

A Soviet delegation visited in July, headed by A. F. Veprev, Chairman of the Agrarian and Food Committee, USSR.

Other distinguished foreign visitors include: Dr. S. Nagarajan with the Indian Council of Agriculture, several Philippine agricultural research administrators, the Secretary General of Young Farmers Agricultural Association in Spain, and a large group of Canadian agricultural professionals on a trip sponsored by the University of Guelph, Ontario.

In September, Jill Landis of CBS News Radio visited.

Special appreciation to gardeners: Sixty master gardeners visited the Center through the Pennsylvania State Extension Office. They admired the perennial gardens in front of the Log Lodge and for good reason. Thanks to Jesse Smith and the ladies and gentlemen of the Bowie/Crofton Garden Club, all of our perennials are labeled with common and Latin names.

Volunteer Appreciation Day

Mrs. Jane Wall, FAR-B Board member, was awarded a volunteer appreciation plaque from the ARS National Visitor Center on October 12. The occasion was Volunteer Appreciation Day.

Jane was one of 25 volunteers of the Visitor Center to be recognized for assisting in promoting public appreciation of agricultural research. As a science education facility, the National Visitor Center relies on volunteers for expertise both in research and teaching to fulfill its obligations to both the Agency and the community.

To underscore appreciation for those receiving plaques, the Visitor Center held its 5th semi-annual Take Pride In America work day following the ceremonies. TPIA volunteers again teamed up for trail blazing around the lake and planted several hundred daylillies. The plants were donated by Behnke's Nursery and second generation daylilly breeder Robert Griesbach. Rob received an appreciation plaque earlier in the day for his unselfish hosting of dozens of school groups to his laboratory in the ARS Florist and Nursery Crops Laboratory at Beltsville. He then arranged the new daylilly garden. Refreshments were provided by FAR-B for the Volunteer Appreciation Day and TPIA picnic following the award ceremonies.

Reception for Distinguished Scientists

With a lot of thanks to his friends, John Neiderhauser, highlighted a morning reception in his honor as the 1990 World Food Prize recipient with compliments to ARS, Beltsville, and "this fine facility," the National Visitor Center. Neiderhauser was recently named Prize recipient for his career as an outstanding potato researcher internationally.

BARC Director Essex Finney and the ARS Vegetable Laboratory at Beltsville hosted the reception which took place prior to a luncheon and lecture by Neiderhauser at the University of Maryland campus at College Park. Approximately 130 people attended the reception. Also in attendance was Norman Borlaug, 1970 Nobel Peace Prize laureate and founder of the World Food Prize for outstanding contributions to solving world food problems, and famed international corn scientist Dr. John Wellhausen.

In his remarks, Dr. Neiderhauser recognized Borlaug, Wellhausen, and other distinguished scientists in attendance: Date van der Zaag of the Netherlands, Malcolm Driver of New Zealand, Bharat Lal Karmacharya of Nepal, Florian Lauer of the University of Minnesota and the President of the Potato Association of America, and Anastasio Morales Esparza and Ernesto Samayoa of Mexico. Refreshments were provided by FAR-B.

Visitor Center Summer Apprentice

This summer, Susan Dryburgh, now a senior at Oxon Hill High School, one of Prince George's County's two magnet schools for science, was public affairs apprentice at the National Visitor Center. This new position was designed to "help continue the proud tradition of high quality research" at BARC. It was funded by FAR-B in cooperation with ARS. Ms. Dryburgh, who is in the advanced science program at her high school and will study biology in college, was of great assistance at the Visitor Center which was overwhelmed with visitors this summer. She was delighted with her experience and feels that she learned more about science than she would if she had worked in a laboratory.

As she sees it, before she came to work for ARS, her "idea of agriculture... was... farms and fields of corn." Now she knows it includes much more. Yes, it has to do with growing fields of corn. But then she notes, the researchers at the Plant Molecular Biology Laboratory begin their work by looking for desirable traits such as resistance to disease or fungus or to drought. The next step is to look for means by which these traits may be bred or genetically engineered into all corn plants, work that involves laboratories dealing with pathology, hydrology, genetics, and soil science. All this may be followed by nutrient

analysis at the Human Nutrition Center where scientists look at questions like -- Is it good for people to eat? What kind of nutrients are present? Does it taste good? Moreover, she found out that "the laboratories and their results are only a part of science. Another important factor is being able to make the results and information available to the public...If people don't know about the research and results, then it isn't going to do any good."

STEVE BERBERICH

BELTSVILLE RESEARCH, A CONTINUING STORY

Experimental Vaccine for Chickens

An experimental live vaccine developed by a Beltsville research team appears virtually 100% effective in protecting young chickens against coccidiosis, a serious poultry disease. "Of 200 chickens we orally vaccinated, none became ill when exposed to the coccidial parasite," said microbiologist Mark C. Jenkins, who heads the research team at the Protozoan Diseases Laboratory. He noted that the vaccine consists mainly of a preparation of the infective stage of the parasite that has been bombarded with X-rays which "makes the parasite sterile so it can't reproduce, but is still alive and able to penetrate a chicken's intestines. Our theory is that when chickens are fed the sterilized coccidial parasite, they react by producing antibodies and immune cells. This protects them from infection when exposed to disease-causing parasites."

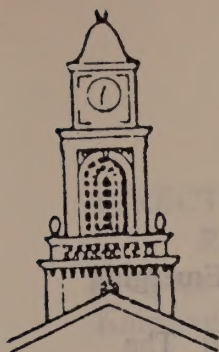
Coccidiosis costs American poultry farmers over \$300 million annually in lost weight gain and medication. Usually, most infected birds look healthy, but the parasite prevents them from absorbing nutrients from the gut. This causes a sort of slow starvation. Therefore, three versions of the vaccine were produced, one for each of the three worst species of chicken coccidiosis. All were equally effective in the tests. After the parasite is sterilized, no radiation remains in the vaccine so that it is safe for use in the birds. If further tests work out, the vaccine would require approval by the Food and Drug Administration before it could be used commercially.

"The new vaccine would be superior to current methods of protecting chickens from coccidiosis," said Jenkins. Most U.S. poultry farmers control coccidiosis in their flocks by medicating the feed. The parasites often develop resistance to the drugs and new medications then have to be developed. Other controls use live parasites in various forms including vaccines, he added. With these methods, chicken houses can accumulate infectious forms of the parasites. There is also the chance that vaccines could revert to virulent forms.

"As promising as it may seem, this vaccine is a few years from practical use," said microbiologist Harry D. Danforth, another member of the team. "We need at least another year of laboratory testing, followed by extensive field studies, to make sure it is effective in large commercial flocks," he said.

According to microbiologist Patricia C. Augustine, likewise a colleague of Jenkins, "the technique is not new but we ran dozens of tests to fine-tune the dosage of X-rays to sterilize the parasites and at the same time leave no disease-causing parasites in the preparation."

VINCE MAZZOLA, DON ELDER



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

July, August & September, 1991

PRESIDENT'S REPORT

The mid-September, 1991, Symposium XVI about Photomorphogenesis in Plants is imminent; and the concurrent planning and organization for Symposium XVII about Water Quality in Agriculture is already well-advanced. This is indeed a hectic time for Symposia organizers and FAR-B representatives. The respective chairmen provide information about progress and plans elsewhere in this newsletter.

During 1990 and 1991, FAR-B has funded a summer "internship", at Beltsville, for an area high school student. In 1990 Susan Dryburgh from Upper Marlboro significantly helped with the variety of activities at the Visitors' Center. Susan is now a pre-medical student in a Pennsylvania college. During the summer of 1991, Theresa Weaver from Oxon Hill, was a student aide in the Publication Branch of the ARS Office of Information where she was exposed to all aspects of agricultural research. Theresa is now a student of genetics at the University of Maryland as well as being a part-time aide in a BARC plant physiology laboratory.

Separately you will have received information about a "roving" Livestock Painting Exhibit that will be at the National Agricultural Library during September 13 to October 31. You should also have received an invitation to participate in the opening ceremony and reception for which FAR-B is a co-sponsor.

ALBERT A. PIRINGER, President

BELTSVILLE SYMPOSIUM XVII

The speaker agenda for the Beltsville Symposium, "Agricultural Water Quality Priorities, A Team Approach for Conserving Natural Resources" has been finalized. Twenty-seven internationally known water quality specialists from federal and state agencies, as well as major universities have formally accepted invitations, each will speak for 30 minutes. Formal proceedings will be published in the Journal of Environmental Quality.

We are presently soliciting participation for the two poster presentations. Letters of invitation for poster presentations were mailed out two weeks ago, and are receiving favorable responses. Additionally, the first brochure announcing the symposium has been finalized and will be mailed out the week of September 16th. For information with regard to the poster presentations please contact Dr. C. B. Coffman, Weed Science Laboratory, (301) 344-3398 or FAX (301) 344-8091

TIMOTHY J. GISH
and ALI SADEGHI
Symposium XVII Co-chairmen

BELTSVILLE SYMPOSIUM XVI

This year's symposium is almost upon us. It is entitled, "Photomorphogenesis in Plants: Emerging Strategies for Crop Improvement". The symposium will be held September 22-26 at the Conference Center, University of Maryland University College, in College Park Maryland. The Final Announcement and FAR-B registration form for the symposium were mailed to all members in late August. Please contact the symposium office (344-3607) if the information was not received or to register at the last minute.

The symposium promises to be an excellent meeting. In addition to the many reports of significant research advances the symposium will host several USDA and visiting scientists who contributed to the early phytochrome discoveries at Beltsville. We hope as many of you as possible will join us for all or some of the events. A brief schedule of events follows.

Sunday 9/22/91	Registration, Main Concourse	1:00 - 10:00 pm
	Reception, Fort McHenry Room	7:00 - 10:00 pm
Monday	Sessions 1 - 3, Auditorium	8:15 am - 5:50 pm
	Opening Remarks	
	Reflections on the Early Years of Phytochrome Research (Organized and chaired by Dr. Albert A. Piringier)	
	Phytochrome Function in the Natural Environment	
	Photoperiodism	
	Poster Session I, Founders Room	7:00 - 10:00 pm
Tuesday	Sessions 4 - 5, Auditorium	8:15 am - 5:40 pm
	Blue Light Photoreception, Phototropism, and UV Photoreception	
	Phytochrome Mutants and Transgenic Plants	
	Poster Session II, Founders Room	7:00 - 10:00 pm
Wednesday	Session 6, Auditorium	8:00 - 11:30 am
	Phytochrome regulated gene expression	
	Excursion (optional), to St. Michaels, MD	12:00 noon - 10:00 pm
Thursday	Sessions 7 - 9, Auditorium	8:00 am - 5:30 pm
	Light mediated signal transduction	
	Phytochrome structure and properties	
	Opportunities and Future Research Directions	
	Social Hour, Fort McHenry Room	6:30 - 7:30 pm
	Banquet	7:30 - 10:00 pm
	FAR-B Award presentation	
	Speaker: Dr. H. Marc Cathey	
	National Chair for Florist and Nursery Crops Review	
	National Program Staff, ARS, USDA	
	Title: "Our Global Garden"	

WILLIAM J. VANDERWOUDE
STEVEN J. BRITZ
Co-Chairs, Symposium XVI

DIRECTOR'S COMMENTS

R. Dean Plowman, Administrator of ARS, has announced a new structure for the National Program Staff (NPS). Five Associate Deputy Administrators (ADA's) will now report to Ed Knipling, the Deputy Administrator for National Programs. The five program groups are:

Natural Resources -- J. van Schilfgaarde, Acting ADA

Plant Sciences -- H. Brooks, Acting ADA

Animal Sciences -- R. Oltjen, ADA

Genetic Resources -- R. Gerrits, Acting ADA

Agriproducts & Human Nutrition Sciences -- J. Robens, Acting ADA

H. Marc Cathey has taken on a new assignment for ARS. In September, Dr. Cathey became National Chair for Florist and Nursery Crops Review, reporting to E. B. Knipling. In this new position, Marc will be responsible for conducting an intensive review and evaluation of the production and marketing research needs of the florist and nursery industries. These two industries are among the fastest growing areas in U.S. agriculture. ARS is very much interested in strengthening its programs to support American growers as they work to meet the domestic demand and develop export markets. Dr. Cathey's review will play a significant role in the development of the ARS long-term research agenda for these important industries.

Three research scientists in the Livestock and Poultry Sciences Institute recently received national recognition for their accomplishments. Dale Waldo received the Pioneer Hi-Bred Forage Award from the American Dairy Science Association for outstanding research contributions in forage production, processing, storage and utilization. Gerald Huntington was given the American Feed Industry Association Award for his innovative studies of nutrient metabolism in the gut, liver, and other tissues in growing and lactating cattle. Larry Johnson received the Animal Physiology and Endocrinology Award from the American Society of Animal Science. Dr. Johnson has made outstanding advances in techniques for sorting sperm to pre-select the gender of livestock offspring. Larry has agreed to take on broader leadership responsibilities at BARC. On October 1, he will become Research Leader of newly formed Germplasm and Gamete Physiology Laboratory. This new Laboratory will place emphasis upon cryopreservation of sperm and embryos; embryonic development in the turkey; endocrinology of reproductive processes; and gender pre-selection through sexing of gametes.

Finally, the firm of Hellmuth, Obata and Kassabaum of Washington, D.C., has started the design of a new Plant Sciences Building for BARC. The building will be located west of Building 003 (the Administrative Building). It will house the horticultural crops programs at BARC. The design should be completed in the summer of 1992, and construction is scheduled for 1993. The President's FY '92 budget includes construction funding for the new building.

ESSEX E. FINNEY, JR.
Director, BA

JOHN G. SHAW

We received word recently that John G. Shaw of Riverside, California, passed away on May 4, 1991. Mr. Shaw has been a FAR-B member since 1987 and was a career scientist with ARS for over 35 years. He spent most of his career as a Research Entomologist at the ARS laboratory in Riverside. Mr. Shaw was a world authority on fruit flies and authored numerous publications in this field of research. Mr. Shaw was a graduate of the University of Kansas in 1930. Following his retirement he served as a Consultant to APHIS on fruit fly control activities in Mexico. Mr Shaw was 82 years old at the time of his death.

FRANK LONGEN

VISITOR CENTER

The Maryland Agricultural Commission, advisory board to Maryland's Secretary of Agriculture, Wayne A. Cawley, Jr. used our conference facilities for their July 10 meeting. We arranged a welcome by our personnel, as well as a briefing on our educational program. The group had their meeting followed by a tour of the Research Center. A luncheon was also arranged for the Commissioners. FAR-B Board members George Irving and John Moseman attended the luncheon. The Ag Commissioners are leaders in Maryland agriculture and it is important that they are aware of the function and activities of the Beltsville facility.

The National Agricultural Library will be the venue for the opening of an educational exhibit of Seeds of Change. This is a 12,000-square foot exposition that will later be housed at the Smithsonian Museum of Natural History celebrating and teaching cultural change in the 500 years since Columbus discovered America. It is rich in agricultural information. Arrangements are proceeding for a December 1991 premier and workshop on the educational exhibit. Details on that ceremony will be forthcoming.

STEVE BERBERICH, Director
National Visitor Center

LIVESTOCK PAINTINGS EXHIBIT AT NAL

An exhibit of farm animal paintings by some of the most famous artists of the last 150 years, including Jamie Wyeth, Seavey Lucas, Thomas Sidney Cooper and Edmund Gill, will begin a one-year national tour at the National Agricultural Library (NAL) in Beltsville, Maryland, September 13.

The exhibit, entitled "The Art of American Livestock Breeding" and sponsored by the American Minor Breeds Conservancy, will be open to the public, free-of-charge, in the NAL lobby through October 31, 1991 from 8:30 a.m. to 4 p.m., Monday through Friday (except holidays).

The library will hold an opening ceremony at 3:15 on Friday, September 13, in the NAL lobby. Speakers will be announced later. Following the ceremony there will be a reception sponsored by the Associates of the National Agricultural Library, Inc., and Friends of Agricultural Research-Beltsville, Inc. Attendance at the ceremony and reception is by invitation. FAR-B members were sent invitations. If you did not receive one or would like another one,

please contact Virginia Hupfer, 344-4628.

Included in the exhibit are paintings of cattle, horses, sheep, swine and poultry. Many of the portraits were commissioned by the owners of prize-winning or top performing animals. The paintings have been loaned for the exhibit by art collectors in the United States and England.

"This exhibit speaks to the cultural and historical importance of traditional breeds of livestock," said R. John Dawes, curator of the exhibit. "Though we are a nation descended from farmers, few of us can identify a breed of livestock. Knowledge of this valuable part of our heritage is nearly lost, along with the genetic diversity these breeds represent." Dawes said the exhibit will be of interest to animal scientists, farmers, historians, artists, art collectors and anyone who appreciates animals.

BRIAN NORRIS

BELTSVILLE RESEARCH, A CONTINUING STORY

Enzymes like those produced by the soil fungus *Trichoderma viride* may be used one day as a tool to both defend and kill plants. ARS scientists found that one enzyme, known as EIX, promotes ethylene production in some varieties of tobacco. Ethylene is a plant growth hormone that causes fruit to ripen and cells to age. The EIX enzyme rapidly induces ethylene, so researchers are intrigued by its possible use as a natural herbicide. Another potential use: A tool to speed the screening of resistant traits against disease. Scientists are continuing research to fully understand EIX and its possible applications. Also, studies of the enzyme may lead to new understanding of ethylene production and control of postharvest losses of fruits and vegetables.

Plant Hormone Lab

James D. Anderson/Rosannah Taylor/Bryan A. Bailey

The pressure inside tomato cells can affect how fast the fruit ripens. That's because pressure influences how fast a precursor chemical, ACC (1-aminocyclopropane-1 carboxylic acid) is transported to sites within the cell where ACC is converted into the ripening hormone, ethylene. Intermediate cell pressure induces more ethylene production and tends to ripen tomatoes faster than those with higher or lower pressure. Researchers are studying ways to manipulate cell pressure, ACC transport, or both, to control ethylene production. Too much ethylene, or producing it at the wrong time, causes overripening, leading to reduced quality, spoilage and an estimated loss of \$30 million per year in the United States. If cell pressure can be modified, the shelf life of various perishable produce can be extended, while at the same time keeping it firm enough to handle without bruising.

Plant Hormone Lab

Robert A. Saftner

Americans may be consuming substantially more calories than nutrition surveys show, according to an analysis of 12 long-term studies. The 266 volunteers-from 21 to 64 years old-reported consuming an average 18 percent fewer calories on food intake records prior to the studies than they actually needed to maintain weight during the studies. There was no difference

in reporting based on the volunteers' gender, age or weight. Eighty-one percent underreported their food intake, 8 percent overreported and 11 percent were accurate to within 100 calories. If substantiated in larger studies, the findings have far reaching implications: The vast majority of food and nutrient intake data comes from individuals recalling or recording what they ate. These data are used by federal agencies to judge the nutritional status of the U.S. population and identify low intakes of vitamins or minerals. A higher food intake could mean that the "problem nutrients" - such as vitamin B6, zinc, magnesium and iron for women - are not such a problem. It could also explain why average body weight of the U.S. population increased between the late 1960's and late 1970's while reported food intake went down.

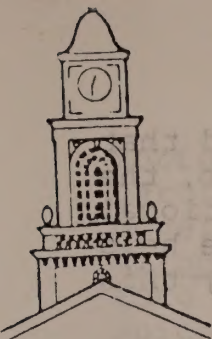
Beltsville Human Nutrition Research Center
Walter Mertz

After 5 years, herbicides have yet to show up in groundwater below 14 feet, where they might otherwise migrate into drinking water. The long-term study at Beltsville, Md., compares pesticide movement under standard tillage with "no-till" planting practices under conditions common in the Corn Belts. The herbicides (atrazine, alachlor and cyanazine), the amounts used, the soil type and the rainfall patterns in Beltsville are all similar to those in the Midwest. On no-till fields, seeds are planted without plowing under previous crop residues. Among the findings to date: Regardless of the type of tillage, herbicides are mainly confined to the upper 12 inches of topsoil and none have been found in groundwater below 14 feet. No-till plots have substantially less herbicide residue in the top 4 inches of soil than conventionally tilled fields, but more residue in the next 8 inches. The pesticide levels in groundwater sampled at 5- to 36-foot depths have usually been well within health advisory levels of the Environmental Protection Agency. Where the residues approach or exceed advisory levels upon initial testing, they drop back within 2 or 3 days. This research project will continue another 4 years, and the data will be used to validate computer models to predict chemical movement in each major crop-growing region of the country.

Pesticide Degradation Lab
Allan R. Isensee/Ali Sadeghi

New findings underscore why fish oil capsules may not be recommended for diabetics. The capsules significantly altered levels of some hormones and opiates involved in metabolizing glucose and fat in 40 healthy, nondiabetic men. After taking 15 grams of fish oil daily for 10 weeks, the men had lower levels of the hormones glucagon, cortisol - which works against insulin - and somatomedin-C. The levels of beta endorphin - an opiate secreted along with glucagon - were also reduced. On the other hand, blood sugar levels increased as had been reported by other researchers. Taking vitamin E along with fish oil capsules did not reverse the changes in blood glucose, hormones or opiates except for somatomedin-C. Some studies suggest that fish oil may be beneficial in reducing incidence of heart disease by lowering blood triglycerides and other lipids, and increasing tissue sensitivity to insulin. However, in diabetics, its effects on some central hormones involved in glucose metabolism could be detrimental.

Carbohydrate Nutrition Lab, Beltsville Human
Nutrition Research Center
Sam J. Bhathena



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

December 1990/January 1991

Remember to mark March 12 on your calendar.
That's the date of FAR-B's Annual Meeting
at the Visitors Center (Log Lodge) at 2 pm.

PRESIDENT'S REPORT

In 1990, as you may remember, FAR-B reported the deaths of three charter members - Martin Weiss, Ruth Busbey, and FAR-B President Ted Byerly. Biological sketches of these distinguished alumni appeared in the June newsletter. We were all pleased that before he died in mid-May Dr. Byerly knew that he had been selected to enter the ARS Science Hall of Fame. The ceremony honoring him took place at the U. S. National Arboretum on June 12.

Then in the September/October newsletter, we reported the retirement of Dr. "Waldy" Klassen from ARS and noted his outstanding accomplishments as scientist, counselor, and administrator. Waldy had conceived the idea of what became the Friends of Agricultural Research - Beltsville (FAR-B), and it was because of his efforts that it came into existence in 1986. The Board of Directors therefore designated him FAR-B's first Honorary Lifetime Member. Dr. Klassen is now working with the FAO International Atomic Agency in Vienna, Austria.

There was other news in 1990. Beltsville 1990 Symposium XV (Remote Sensing for Agriculture), which was co-sponsored with NASA and held at the Goddard Space Flight Center in mid-May, was, of course, a resounding success. (It addressed the concomitant concerns and application of modern space technology and environmental and agricultural bioscience.) The speaker at the Symposium banquet was California Congressman George Brown who addressed the history and political future of the Landsat satellite program. Another highlight of this occasion was the acceptance by Dr. Archibald B. Park of FAR-B's Fourth Annual Outstanding Scientist Award for his leadership in the recognition and use of satellite imaging of the earth to identify the nature and condition of vegetation worldwide.

Planning is now underway for the 1991 late-September Symposium XVI - Photomorphogenesis in Plants: Emerging Strategies for Crop Improvement. You will find more information elsewhere in this

newsletter. And FAR-B's Board of Directors has been advised that Symposium XVII (1992) will concentrate on water quality. Also, the Board has agreed to give support to the Second International Symposium on Invitro Culture and Horticultural Breeding to be held in Baltimore in June 1992. See the announcement following this report.

Now for more mundane matters.

As vice-president of FAR-B, I assumed Dr. Byerly's responsibilities as president after his death. Subsequently the Board of Directors formally appointed me to fill that office. Then at the December Board meeting, the Nominating Committee (myself, William Bailey, and Frank Longen) presented the names of Angus A. Hanson and John G. Moseman to fill the vacancies on the Board of Directors. These names will be put to a vote of the membership at the Annual Meeting in March. Meanwhile, John Moseman has agreed to fill the present vacancy until that date.

I urge you to plan now to attend the FAR-B Annual Meeting on March 12. Mark your calendar and join us.

Best wishes for 1991.

ALBERT A. PIRINGER

SUPPORT FOR 1992 INTERNATIONAL MEETING

The Board of Directors of FAR-B approved funding to help with the early phases of organizing the Second International Symposium on Invitro Culture and Horticultural Breeding to be held in Baltimore, Maryland, in June 1992. This symposium will be sponsored by the International Societies for Horticultural Science. Dr. Freddi Hammerschlag and Dr. Richard Zimmerman, BARC scientists, will organize and co-chair the symposium. About 300 research scientists from around the world are expected to attend.

DIRECTOR'S COMMENTS

I wish to express deep appreciation for the excellent support which the members of FAR-B have provided during the past year. It has truly made a difference for the research programs at Beltsville.

Beltsville has added another "first" to a long list of notable achievements in agricultural research. Dr. George Papavizas, Research Leader of the Biocontrol of Plant Diseases Laboratory, advises that EPA has approved the first registration of a naturally occurring beneficial fungus as a new biological control for plant diseases. Gliocladium virens, discovered and researched in Dr. Papavizas' laboratory, has been approved for use in greenhouses to control "damping off" diseases caused by Rhizoctonia solani and Phythium ultimum. These two plant pathogens attack seeds and seedlings in the soil and cost over \$1 billion a year in losses.

Cotton, corn, beans, soybeans, tomatoes, and ornamentals are particularly vulnerable to damping off diseases. ARS scientists developed and patented the technology for formulating the Gliocladium into pellets that can be easily stored and incorporated into the soil. The patent was licensed to W. R. Grace and Company which plans to seek registration for outdoor use of this new biocontrol technology. A more detailed report is included in this newsletter.

The 1991 budget for the Department has finally been approved. ARS received about \$36 million in added funds to strengthen research in a number of areas including water quality, food safety, climate change, plant and animal germplasm, and animal health. Dr. Plowman, the ARS Administrator, has approved the addition of \$7 million to strengthen research programs at Beltsville. In addition, \$16 million is being provided to move forward with the modernization of the facilities at Beltsville. We are very pleased with the support provided for the current year. Beltsville is being treated very well.

Three major building modernization projects will be completed during the next 12 months. A new small animal building for the Human Nutrition Research Center near Building 308 will be completed in the spring. The renovation of Building 007 (the Soils Building) which has been underway for the past 2 years is scheduled to be completed in the summer. It will house many of the programs in our Natural Resources Institute. And finally, we hope to move back into the Administration Building (Building 003) before the end of 1991. It is scheduled for completion in the fall.

A new laboratory building is being planned for BARC-West. This will be a 70,000 square foot laboratory structure to house the Fruit Laboratory, the Florist and Nursery Crops Laboratory, and the Vegetable Laboratory. The design money for this project was approved in the Department's FY 1991 budget. Dr. J. B. St. John, Deputy Area Director for Plant Sciences, is working with the Research Leaders and engineers on plans for this new building. Construction funding is anticipated in 1992.

ESSEX E. FINNEY, JR.

BELTSVILLE SYMPOSIUM XVI

Program development and speaker selection is progressing for the 1991 Beltsville Symposium, "Photomorphogenesis in Plants: Emerging Strategies for Crop Improvement". The Symposium, to be held September 22-27, 1991, will cover recent advances in research on the regulation of plant growth and development by light. It will also commemorate 40 years of research on the photoreceptor, phytochrome, that began in 1951 at Beltsville with the discovery of red - far red photoreversibility in the photoregulation of seed germination and flowering.

The Symposium will consist of eight sessions, each to be led off by two principal speakers, followed by selected short presentations from other participants. Poster sessions will be held on two evenings, and the 100 anticipated posters will remain available for viewing throughout the symposium. Speakers and other participants will be invited to submit manuscripts for peer review and publication in a special Symposium issue of Photochemistry and Photobiology.

Several recent, significant advances in photomorphogenesis research have occurred that will be reported at the Symposium. These include (1) the identification of a strong regulation of crop plant growth and development by the spectral quality of reflected light from the soil surface and adjacent vegetation, (2) the identification, characterization, and physiological role of multiple forms and genes for phytochrome, and (3) advances in the development and use of phytochrome mutants and phytochrome-altered transgenic plants that support new research opportunities and new strategies for crop improvement. We hope many of you will plan to join us in September for what promises to be a very interesting and exciting symposium.

W. J. VANDERWOUDE

VISITOR CENTER

FAR-B members may volunteer to escort students to laboratories on Public Science Day, Feb. 14. This event, still being planned, is sponsored by the American Association for the Advancement of Science. As many students as possible will be taken to special demonstrations in laboratories that day. The idea is to stimulate interest in science careers. To volunteer, call Marge Fellows at the Visitor Center, 344-2483.

Participation in this event is part of a new strategic plan for the National Visitor Center. The plan notes that "There is no better place on earth to aid public understanding of science in agriculture than at the ARS National Visitor Center at Beltsville, Maryland. In international circles, Beltsville is a symbol of American success. The U.S. Congress and the Executive Branch hold Beltsville, ARS and agricultural sciences in high regard. However, many agricultural leaders say that, without bolstering public support, there may not be enough public and political acknowledgment to prevent erosion of ARS' well-earned reputation. Few congressmen represent vested interests of agriculture, and farms are no longer a large part of our culture. In today's research climate, scientists are driven by an essential principle of free and cooperative publishing. But, as their disciplines become more and more specialized, the work of scientists is increasingly a mystery to most of the taxpaying and voting public. In fact, there is considerable hostility toward science today, highlighted (or lowlighted) by opportunistic critics of

biotechnology, germplasm collections, animals in research and other areas. These critics feed on public fear and ignorance.... Although the ARS mission is noble and essential, the agency cannot operate in a vacuum--a lack of public knowledge." The plan is based on input from dozens of visitors and advisors. It has now gone to Dr. Plowman for review.

Over the past two years, that is, since the National Visitor Center was completed, the number of visitors has increased 115 percent over the number that came to the old Beltsville Visitor Unit. In 1990, 10 percent were foreign, 63 percent were teachers or students (about 1/3 teachers), and 61 percent high-level government or industry executives visited. Some of the distinguished guests to the Center since October 1990:

John Neiderhauser, World Food Prize Winner for 1990

Dr. Naim Sharaf, Director of National Center for Agricultural Research and Technology Transfer

Dr. Bigalke, Chief Director of Animal Production, Department of Agriculture Development, South Africa

Dr. Marziah Mahmood, Department of Biochemistry and Microbiology, University of Pertanian, Malaysia

STEVE BERBERICH

BELTSVILLE RESEARCH, A CONTINUING STORY

In November, a strain of *Gliocladium virens*, discovered and researched in U.S. Department of Agriculture laboratories, was approved by the Environmental Protection Agency as a greenhouse biological control for two diseases that cost growers more than \$1 billion a year. It is the first biocontrol fungus approved to control a plant disease in the United States.

The USDA's Agricultural Research Service invented and patented technology for formulating the *Gliocladium* into easily applied pellets. W. R. Grace & Co. was granted an exclusive license by ARS for its use, and then in cooperation with ARS scientists, further developed the technology.

"Grace hopes to have a product on the market in two years," said Francois P. van Remoortere, president of the Grace Research Division.

The two fungi, *Rhizoctonia solani* and *Pythium ultimum*, cause diseases called "damping off." which rots seedlings, and cuttings.

"Almost any seed or seedling is vulnerable to attack" by these fungi, which can destroy 10 to 30 percent of a crop, said Robert D. Lumsden, plant pathologist with the federal research agency.

Among damping off's victims are: geraniums, snapdragons, chrysanthemums, celosia, poinsettias, cotton, corn, beans and soybeans.

In tests done by Lumsden and ARS plant pathologist James C. Locke, Gliocladium reduced--by 80 to 95 percent--plant loss caused by the fungi, results similar to those obtained with chemical fungicides.

The scientists hope that, by selecting better strains of the fungus or improving the nutrients in the pellet, the biocontrol can consistently reduce damage by 95 to 100 percent.

Today's approval allows Gliocladium's use on any plants grown in a greenhouse including ornamentals and edibles like tomatoes, cabbage or broccoli. According to van Remoortere, Grace may seek registration for outdoor use of the biocontrol fungus as markets open up.

The pellets, which resemble granular fertilizer, are made of dormant fungal spores, wheat bran, and alginate--a natural gel-like material that binds the particle together. When the pellets are moistened, the spores germinate, and the fungus multiplies and controls the disease.

Gliocladium is a naturally occurring organism that was isolated from Maryland soil by scientists at Beltsville's Biocontrol of Plant Diseases Laboratory in the early 1980's.

Chemist William J. Connick, Jr., who is with an ARS laboratory in New Orleans, La., originally developed the alginate pellet formulation to encapsulate herbicides to kill weeds on top of the soil.

Soil scientist Jack A. Lewis and plant pathologists George C. Papavizas and Deborah Fravel, all at Beltsville, were awarded ARS patents for their part in adapting the alginate process for biocontrol fungi in the soil.

"One of the keys to making this product effective involved mass producing the fungus and formulating it into pellets," said James F. Walter, manager of biochemical engineering at the Grace Washington Research Center in Columbia, Md. This product represents the first in a series of biological control agents being developed by Grace in collaboration with ARS.

JESSICA MORRISON SILVA



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

December/January

NEW YEAR'S GREETINGS TO ALL

PRESIDENT'S REPORT

Friends of Agricultural Research-Beltsville, Inc. (FAR-B) is six years old and your loyal membership has enabled our organization to provide reliable and meaningful support to BARC research and related activities and particularly to the annual BARC symposia, the National Visitors Center, and BARC's scientific and community concerns and events. Our quarterly newsletter keeps you informed about our involvement in BARC's affairs as well as about its fiscal status and research activities.

The mid-September, 1991, Symposium XVI on the subject of photomorphogenesis in plants was successful and enlightening; the early May 1992 Symposium XVII on water quality priorities is impending; and the organization and planning for the 1993 Symposium XVIII about biopesticides is underway.

BARC Poster Day 1992 will be held on Tuesday, March 10 in the newly renovated Bldg. 003 from 9:00 a.m. to 4:00 p.m. This second annual display of research results fosters communication among scientists at BARC. About 85 scientists are expected to use this method to demonstrate their research. All Post Doctoral Research Scientists and new scientists with less than 3 years of BARC service are expected to participate.

Propitiously, this year's Poster Day coincides with the Annual Meeting of FAR-B which means that FAR-B members will have an opportunity to study the research of new BARC scientists in the morning and can share in the FAR-B fellowship and the excitement and help influence its affairs in the afternoon.

Reserve March 10 now on your 1992 activities calendar. Remember the morning for BARC Poster Day and the afternoon for the FAR-B annual meeting and election of officers.

ALBERT A. PIRINGER, President

BELTSVILLE SYMPOSIUM XVI

The symposium, entitled, "Photomorphogenesis in Plants: Emerging Strategies for Crop Improvement", was held September 22-26 at the University of Maryland University College Conference Center. It honored the fortieth anniversary of the beginning of phytochrome research in 1951 at Beltsville. The first session was chaired by Albert A. Piringer, President of FAR-B, and featured comments by many of the Beltsville and visiting scientists who worked in the

original phytochrome group.

The symposium also served as the 1991 Symposium of the European Plant Photomorphogenesis Group. Total registration for the symposium was 223, with 87 from foreign countries and 30 from Beltsville. The 3.5 day scientific program consisted of 58 speakers and 98 posters. The facilities, program, and scientific content were all evaluated as excellent by the participants. The current rapid rate of research advance in plant photomorphogenesis was clearly evident at the symposium.

Tours of BARC and the historical phytochrome building (B-006) were conducted before and after the symposium. Ninety-eight registrants participated in the symposium excursion to St. Michaels, MD on Wednesday afternoon-evening. At the banquet the participants enjoyed the presentation, "Our Global Garden", given by H. Marc Cathey, now with the National Program Staff. The FAR-B Distinguished Scientist Award was presented to Mrs. Vivian K. Toole for her pioneering contributions to knowledge of the regulation of seed germination by light and temperature, and for her contributions to the discovery of phytochrome.

Preparation of the symposium proceedings, to be published as a special issue of the journal, Photochemistry and Photobiology, is in progress. Most of the manuscripts have been received and are undergoing peer review. A late-summer publication date is anticipated.

The organizers express their gratitude to FAR-B and all who assisted with the symposium, especially to Virginia L. Hupfer, Symposium Secretary, for her many contributions to help make Symposium XVI successful and productive.

WILLIAM J. VANDERWOUDE
STEVEN J. BRITZ
Co-Chairs, Symposium XVI

BELTSVILLE SYMPOSIUM XVII

Plans for Beltsville Symposium, "Agricultural Water Quality Priorities, A Team Approach for Conserving Natural Resources" are progressing smoothly. The symposium will be held in the BARC-W Auditorium, Building 003, May 4-8, 1992. Twenty-seven internationally known water quality specialists will present topics ranging from the biological impact of surface water quality to stochastic descriptions of chemical transport through soil. The oral presentations will eventually be published in the Journal of Environmental Quality. Additionally, there will be 70 poster presentations having to do with both basic and applied water quality research.

TIMOTHY J. GISH
ALI SADEGHI
Symposium XVII Co-chairmen

DIRECTOR'S COMMENTS

Dr. George Papavizas, Research Leader of the Biocontrol of Plant Diseases Laboratory at Beltsville, retired at the end of December 1991. Dr. Papavizas is internationally known for his pioneering contributions in ecology and biological control of soilborne plant pathogens. His research has culminated in the first registration by EPA of a naturally occurring beneficial fungus, Gliocladium virens, for the biological control of damping-off diseases of ornamentals and other crop plants. He was the organizer of the 1980 BARC Symposium on Biocontrol in Crop Production and the 1989 Symposium on the Rhizosphere and Plant Growth. George has received the USDA Superior Service Award and the 1988 ARS Outstanding Scientist of the Year Award. We will greatly miss his outstanding leadership at Beltsville.

The ARS budget for FY 1992 went from \$624 million to \$660 million. ARS also received about \$50 million for various facility projects nationwide. Beltsville received about \$5 million in program increases and \$16 million to continue the BARC Modernization Program. The largest amount of funding (\$13.2 million) is to be used to construct a new Plant Sciences Building at BARC. The design of the building is almost 35 percent complete with the expectation that construction will begin within the coming year. Program increases will strengthen research in human nutrition, water quality, food safety, bees, global change, and crop protection.

In January or early February, we will be moving back to Building 003 - the Administration Building. The final touches are being made to this modernization project. The building will include a remodeled auditorium, cafeteria, and expanded conference room facilities. The Area Director and the Deputy Area Directors for Plant Sciences, Natural Resources, Product Quality and Development, and Facilities Operations and Management will be housed in Building 003. It will also house the Administrative Branch, the Nurse's Office, the Credit Union, and the Germplasm Resources Information Network (GRIN) Staff. We are planning a dedication and open house in the spring to show off this completed project and also Building 007 which is nearing completion. More information will be shared with you later.

Finally, we will be putting major emphasis on updating the Land Use Master Plan for BARC in 1992. We have made this our Number 1 priority for agency funding this year. An outside consultant will be brought in to provide the expertise required to revise the existing plan and to develop a coherent concept for the use of this valuable land resource for the benefit of agriculture and society.

Thank you all for your support over the past years and best wishes for good health and continued prosperity in 1992.

ESSEX E. FINNEY, JR.
Director, BA

WHAT FAR-B MEMBERS HAVE MADE HAPPEN

Friends of Agricultural Research-Beltsville, Inc. (FAR-B) is nearing the end of its sixth year of existence so it's high time the membership received a detailed account of what the organization has been able to accomplish with the funds obtained from annual dues, other funding sources, and the devotion and expertise of members.

The major effort, of course, has been in support of the annual Beltsville symposia. This was noted recently by Dr. Essex E. Finney, Jr., Director of Beltsville Area, who commented on FAR-B's "leadership role in the sponsorship and organization of the Annual Symposia Series on Agricultural Research" and the fact that during these six years "The Treasurer of FAR-B has collected and managed more than \$100,000 required to support the Beltsville symposia". Dr. Finney explained how FAR-B provides advice and counsel in the planning of each symposium, handles registration fees and banquet and reception receipts, and disburses the funds collected for these purposes and for other symposia expenses. In addition, as Dr. George Irving, long-time FAR-B Board Member notes, the "handling of travel and/or subsistence costs has enabled selected students to attend the symposia and has made it possible for foreign research experts to present papers and participate in discussions, thus assuring the comprehensiveness and timeliness of the symposia". Also, Dr. Irving speaks of the practice adopted by FAR-B (and directed by him) "of regularly soliciting contributions from private companies and organizations that have particular interest in that symposium's content. The responses have varied but have generally been encouraging and have provided resources that make support of the symposia all the more effective". The total collected by this effort over the five years beginning in 1987 is about \$13,000.

And there's still another way FAR-B participates in each symposium, and this is by leadership, management, and expertise. Dr. Russell Steere, in his role as FAR-B's first President, advanced the idea that our organization could "honor a person or persons who have worked at Beltsville in an area connected with the current symposium by presentation of the FAR-B Distinguished Scientist Award at the symposium banquet". So the Board of Directors has, for the past five years, designated a committee to search out the proper recipient(s) for the Award. FAR-B covers the costs of the plaques and related expenses from its own funds. (It has amounted to under \$500 during the past five years.) As Dr. Finney notes, the Award "recognizes scientists who have made outstanding contributions to agricultural sciences". Those so honored include Dr. Mary Shaw-Shorb in 1987 for her work on the discovery of vitamin B-12 used to treat pernicious anemia; Dr. Edward W. Baker and Dr. John G. Moseman in 1988 - Dr. Baker for

his work on the biotic diversity of mites, and Dr. Moseman for his research on host-parasite interactions and plant germplasm improvement; Dr. Edward Hacszylo and Dr. Alan W. Taylor in 1989 - Dr. Hacszylo for his research in mycorrhizae and other soil microbes for the advancement of forest tree productivity, and Dr. Taylor for his work in the effective and safe management of agricultural chemicals in the environment; Dr. Archibald B. Park in 1990 for his contributions to the development of the world's first earth sensing multispectral satellite, now known as Landsat; and Dr. Vivian K. Toole in 1991 for her pioneering research on mechanisms that regulate seed germination and development.

Which brings this report to the matter of FAR-B's own funds and their use. Since March 1986, membership dues and interest have added up to more than \$19,000. In addition, contributions have been made to FAR-B by ARS scientists who, as Federal employees, are not permitted to accept honoraria and royalties and who, therefore, request that FAR-B receive the monies. The sum from this source has reached nearly \$2,100. FAR-B's account is thus modest but useful. Operating expenses such as printing costs, including the cost of the brochure that explains FAR-B, the cost of postage (includes mailing the Newsletter), office supplies, P.O. Box rent, etc., have reached about \$3,400. Our total resources, therefore, have enabled FAR-B to support BARC through the funding of a variety of special projects.

One of these has been the funding of summer apprentices for the past two years. In 1990, at the request of the Director of the National Visitors Center, FAR-B funded the employment of a high school honors student to work as a public affairs apprentice at the Visitors Center. The young lady in this assignment is now a pre-medical student in college. Again, in the summer of 1991, we learned of the need for a summer apprentice in the office producing the magazine AGRICULTURAL RESEARCH, and we were able to provide the funding. In both cases, FAR-B funds were transferred to ARS and the Students were employed on a Federal appointment. The young lady employed in 1991, is now a part-time aide in the Plant Physiology Laboratory at Beltsville and pursuing education in plant genetics at the University of Maryland.

Another is the provision by FAR-B of amenities at special events at Beltsville. Dr. Finney explains one part of it as follows: "FAR-B provides financial support for receptions and luncheons for important visitors and foreign guests who come to Beltsville". Another part includes such events as the dedication of the newly-renovated Building 006; luncheons at the Visitors Center on occasions such as Earth Day and Take-Pride in America events, and receptions for such events as the traveling exhibit "Seeds of Change" described earlier in this Newsletter, and the Livestock Painting Exhibit held at the National Agricultural Library in September and October and sponsored by the American

Minor Breeds Conservancy.

Finally, there's the FAR-B Newsletter. It started almost as soon as FAR-B was officially organized with the aim of reporting to members on what FAR-B is doing, to try to accomplish its objectives - the dissemination of information regarding the achievements and resources of the Beltsville Center; taking part in organizing and supporting the annual symposia series; obtaining funds to help renew buildings and equipment at Beltsville; assisting in developing programs of interest to the many present and potential visitors to the Visitors Center; and encouraging research excellence at Beltsville. Over the six years of FAR-B's existence, it has tried to report on the progress FAR-B has made in achieving these aims. There has, however, been one major change.....copies are now sent routinely to all local, State, and Federal legislative people - hopefully a concerned audience. As Dr. Irving notes "by means of the Newsletter and the personal efforts of members, FAR-B has nurtured, by various means, renewed interest in Beltsville by members of the State Legislature and the Congress, thereby furthering the advancement of ARS' Renaissance '93 program for refurbishing and re-equipping facilities, many of which are more than half a century old. It has also helped to bring information concerning the accomplishments and needs of the Center to the attention of the learned societies and the public, as well as to the Federal and State legislative bodies". Indeed, officers of FAR-B have in the past visited with political figures to discuss the need to preserve land at the Center, and have been present to greet and visit such people as the Board of Directors for the Baltimore/Washington Corridor Chamber, the staff of Senator Barbara Mikulski's office, and Assistant and now-Secretary of Agriculture for Maryland, Dr. Robert Walker. Thus, Dr. Finney notes that as a result of the Newsletter and the personal efforts of its members "FAR-B plays an important role in helping to keep the public informed about the Center and has become a vital and essential partner in the ARS programs at Beltsville".

So - please remember.....

FAR-B's ability to assist BARC is due to the support of its members, the dues that are paid, and the personal efforts members make. You've made it happen! Find some others like you to join our ranks.

HONORS AND AWARDS

Three research scientists in the Livestock and Poultry Sciences Institute have been honored for their significant scientific achievements. Dale R. Waldo recently received the Pioneer Hi-Bred Forage Award from the American Dairy Science Association for his outstanding research contributions in forage production, processing, storage and utilization.

Gerald B. Huntington received the American Feed Industry Association Award for the development of innovative new techniques for studying nutrient metabolism changes in the gut, liver, and other tissues of growing and lactating cattle.

Lawrence A. Johnson was honored by his colleagues with the Animal Physiology and Endocrinology Award.

TRAVELING EXHIBIT, "SEEDS OF CHANGE" OPENS AT NAL

"Seeds of Change", a traveling exhibit exploring Christopher Columbus' legacy to North America, including North American agriculture, began a three-year tour of the United States at the National Agricultural Library (NAL) in Beltsville, Maryland, December 4-21. Developed by the Smithsonian Traveling Exhibition Service (SITES) and the American Library Association (ALA), the exhibit commemorates 500 years of cultural and biological exchanges since Columbus' voyages to the New World. It demonstrates how the transfer of five "seeds" - sugar, corn, the potato, disease, and the horse - has affected life in both the Old and New Worlds since 1492, altering forever the flora and fauna, changing the ethnic composition of countries in every corner of the world and transforming the diets and health of people everywhere.

The opening of the exhibit at NAL was arranged in cooperation with the National Visitors Center of USDA's Agricultural Research Service (ARS). The American Library Association and the Smithsonian arranged for 60 librarians from across the country to travel to NAL on December 9 for a workshop to learn to assemble the exhibit and display their collections in conjunction with it. A reception in honor of the exhibit and workshop held at NAL at the conclusion of the workshop was sponsored by the Friends of Agricultural Research - Beltsville, Inc. (FAR-B). Thanks to FAR-B, the librarians were impressed by both our research facilities and hospitality.

JUDITH HO

Special Collections, NAL

BELTSVILLE RESEARCH, A CONTINUING STORY

By growing new apple trees in 16-ounce jars- 40 trees to a jar- researchers have found a way to trim the rising costs of orchards. Replacement apple trees grown by this tissue culture technique could cost growers under \$2 each compared to about \$5 for a tree grafted onto a rootstock. Tissue cultured trees (started from cells) grow on their own roots unlike other apple trees that must be grafted. Time from lab jar to the field is 4 or 5 months compared to about 3 years in a conventional nursery. ARS scientists are now working to dwarf these tissue cultured trees. From 600 to 1,000 dwarf trees could be planted on an acre of land that would sustain only about 150 regular size apple trees. Research is directed to identifying and possible transferring the genetic trait that controls dwarfing. ARS scientists are also

studying growth regulators as a way to control dwarfing.

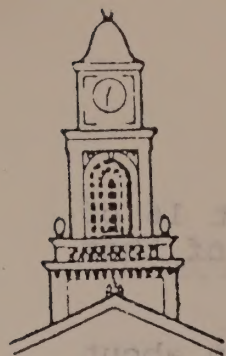
Fruit Laboratory
George L. Steffens

Even a balanced diet doesn't provide enough chromium--the essential trace element that helps regulate blood sugar. Analyses of institutional diets prepared by nutritionists and those freely chosen by study volunteers show that neither contained the minimum suggested intake. The average content of 22 balanced diets prepared at the Beltsville Human Nutrition Research Center was 13.4 micrograms (mcg) per 1,000 calories; it was 15 mcg/1,000 calories for diets study volunteers prepared at home. A person would have to eat between 3,500 and 4,000 calories per day to get the minimum suggested intake of chromium--50 mcg. But the 11 women in one study actually consumed an average 2,273 calories per day, the 8 men 2,950. These levels are typical for Beltsville center studies. Breakfast cereals made with whole bran and those fortified with extra vitamins and minerals, including instant oatmeal, provide 10 to 30 mcg of chromium per serving. To get the maximum suggested intake--200 mcg--people would need a chromium supplement.

Carbohydrate Nutrition Lab
Richard A. Anderson

When wandering gypsy moths try to set up housekeeping in an uninfested area, federal and state agents will have more ammunition--in the form of sterile males--to squelch the intrusion. ARS researchers found that by immersing gypsy moth eggs in the chemical KK-42 they could break diapause--the insect version of hibernation, after only 6 to 8 weeks of chilling instead of the normal 5 to 6 months. That would allow mass rearing facilities to produce up to three times more sterile males than currently possible. By timing the treatment just right, the sterile eggs will hatch just when the fertile eggs do, and they will emerge all at once instead of sporadically. More sterile moths mean more fruitless matings. KK-42 was developed in Japan as an insecticide and later found to break diapause of wild silkworm eggs. But ARS researchers found that it also can prevent gypsy moth eggs from going into diapause altogether.

Insect Neurobiology and Hormone Lab
Robert A. Bell



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

March 1991

ANNUAL MEETING MARCH 12
2 PM VISITOR CENTER
REFRESHMENTS FOLLOWING

ATTENTION FAR-B MEMBERS

The new membership year for FAR-B begins April 1 when reminder notices will be sent out unless payment has been received in advance of this date. Dues remain the same -- \$20 for Personal Members, \$100 for Patrons, \$500 and above for Sustaining Members, and \$10 for Associate Members (current ARS employees).

BUT NOW there is a new treat in store. All members, except Associate Members, who already have easy access, will receive the monthly AGRICULTURAL RESEARCH MAGAZINE once they pay their dues. This magazine, as many of you know, is published by ARS Information to provide timely information on research findings at Beltsville and throughout the Agricultural Research Service. New FAR-B members will automatically be added to the magazine mailing list; if you are already on the list, let us know. If membership is dropped for any reason, the mailings will be stopped.

FRANK LONGEN, Treasurer

PRESIDENT'S REPORT

Please plan to attend the upcoming 6th annual meeting of FAR-B on March 12. Your vote is needed. The Board's Nominating Committee (George Irving, Chairman) has proposed candidates to fill the five currently vacant or expiring positions on the Board of Directors as follows: Al Piring, President; Bill Bailey, Vice-President; Frank Longen, Treasurer; Gus Hanson, Member; and John Moseman, Member. All have agreed to serve if elected. The Board also needs your advice in planning programs to support the research that has been going on for over 75 years.

At the meeting I plan to give a brief review of FAR-B's aspirations and accomplishments. Dr. Essex E. Finney, Jr. BARC Executive Director and our guest speaker, will discuss events at the Center this past year. You may know that it is predicted that the new Secretary of Agriculture who will succeed Clayton Yuetter will be Edward Madigan. Congressman Madigan represents the 15th Congressional District in Illinois, which encompasses some of the

nation's most fertile farm country. Mr. Madigan has spent 16 of his 18 years in Congress on the Agricultural Committee, 8 of them as the ranking Republican.

This issue of the newsletter contains late information about Symposium XVI - "Photomorphogenesis in Plants: Emerging Strategies for Crop Improvement" - which is to take place September 22-27, 1991. This rescheduling of the customary mid-May meeting time for this symposium means that by that date, plans will already be underway for Symposium XVII. Obviously, Frank Longen, FAR-B Treasurer, and Virginia (Ginger) Hupfer, who is the Symposium Secretary as well as Executive Secretary for FAR-B's Board of Directors, are going to have a very busy time. Welcome aboard, Ginger! You and Frank do the major part of the work involved in FAR-B's sponsorship of the symposia.

Again - please come to the Annual Meeting. I hope so much to visit with each of you.

ALBERT A. PIRINGER

A SPECIAL DAY

A special Orientation and Poster Day was held on November 29 for new research scientists employed by ARS at Beltsville. About 75 recently hired scientists and postdoctoral research associates presented posters displaying their most recent research findings. The interaction with other scientists at Beltsville and at College Park was judged to be an outstanding success. Dr. R. D. Plowman, ARS Administrator, and Dr. M. E. Carter, Associate Administrator, joined the program in the afternoon and offered encouragement to this promising group of early career scientists.

OUR FRIEND, MAX CHAMBERS

John Maxwell Chambers ("Max" to all who knew him) died June 18, 1990 at the age of 89. A member of FAR-B from its early days, he was much interested in its work and supported it enthusiastically. Max was born in Salisbury, N.C., attended the local schools and studied at Johns Hopkins University, the University of Maryland, Catawba College, Oberlin College, and Washington College in Chestertown, Md. where he graduated in 1923. After teaching high school in Caroline County, Md., he operated a tomato cannery and then in 1937 became editor and publisher of the News and Farmer, a weekly newspaper published in Preston, Md. until Max retired in 1980. During those years he also published The Vegetable Growers Messenger and The Maryland Poultry Digest. For several years he handled public relations for the Maryland Farm Bureau. He has been a member of the National Press Club, The American Agricultural Editors Association, and the Agricultural Relations Council.

V. R. BOSWELL

DIRECTOR'S COMMENTS

President Bush has sent his FY budget to the Congress. This budget includes a \$39 million increase for research programs within the Agriculture Research Service. Also included is \$20 million to continue further modernization of the buildings and facilities at the Beltsville Agricultural Research Center. These funds provide for the construction of a new Plant Sciences Building and the rebuilding of the Range 2 greenhouse complex.

The General Services Administration is negotiating with BARC to acquire 8.8 acres near Greenbelt to construct a new Federal District Courthouse. The site is near to the Capital Office Park between Edmonston Road and the Capital Beltway. The Congress appropriated a little over \$20 million last year for the acquisition of the site and to construct the new building. Proceeds from the sale of the land are expected to go toward the BARC modernization program.

Agriculture Secretary Clayton Yeutter has announced his intention to leave the Department by March 1. The President has nominated Congressman Edward Madigan, the 15th District of Illinois, to become the new Secretary of Agriculture. Mr. Madigan is the ranking Republican member on the House Committee on Agriculture and has been a strong supporter of the ARS programs at the Northern Regional Research Center in Peoria, Illinois.

As many of you know, Waldemar Klassen started a new job with the International Atomic Energy Agency in Vienna, Austria, last fall. Dr. Klassen asked that I pass along this thought to his friends at Beltsville:

"It is of utmost importance to the American people and to the World that ARS has a prestigious and dignified presence near our Nation's Capital. Every human family on Earth has benefitted from ARS research, and much of this was accomplished by devoted and brilliant people at Beltsville. The future depends on you to a major extent."

I look forward to seeing each of you at the Annual Meeting on March 12.

ESSEX E. FINNEY, JR.

BELTSVILLE SYMPOSIUM XVI

Organization of the 1991 Beltsville Symposium, Photomorphogenesis in Plants: Emerging Strategies for Crop Improvement, is nearing completion. The symposium will be held at the University of Maryland University College Conference Center in College Park, September 22-27, 1991. The European Photomorphogenesis Group will participate jointly in the symposium in recognition of the 40th anniversary of the inception of phytochrome research at Beltsville.

1991 will mark the 40th anniversary of the beginning of phytochrome research. In 1951, scientists at Beltsville observed the phenomenon of red / far-red reversibility of photoresponses, in seed germination and in the photoperiodic control of flowering, and predicted the existence of the photoreversible photoreceptor. Approximately two decades of work by investigators from many nations led ultimately to the isolation of the pigment.

The members of the original "phytochrome team" in 1951 were Harry Borthwick, Sterling Hendricks, Eben Toole, and Vivian Toole. Mrs. Toole now lives in North Carolina in active "retirement". We look forward to honoring her and many other Beltsville and visiting scientists who participated in the early years of phytochrome research.

The symposium will encompass recent progress in photomorphogenesis research and related, emerging strategies for plant improvement. All who are interested in this rapidly advancing research area are invited. The participation of students and post-docs is encouraged. Visits to the Beltsville Agricultural Research Center and the site of the early phytochrome work will be conducted.

Symposium sessions will consist of both lead-off and selected shorter talks. A large number of poster presentations is anticipated. Arrangements are being made for the publication of a symposium issue of Photochemistry and Photobiology. Speakers and other participants will be invited to contribute manuscripts describing their presented work, for peer-review and publication in this proceedings issue.

Members of the Program Committee include the cochairmen, William J. VanDerWoude and Steven J. Britz, both of the Climate Stress Laboratory at BARC. Other members are Gerald F. Deitzer and John C. Watson, in the Departments of Horticulture and Botany, respectively, at the University of Maryland.

Support for the symposium will be derived from several sources. In addition to Beltsville Area funding, income from registration fees, and FAR-B support, grant support for the symposium is being solicited. Also, we are grateful to Dr. Robert Kennedy, Director of the Maryland Agricultural Experiment Station, for the generous commitment of \$5000 to assist with Conference Center expenses and to support the attendance of graduate students.

The lead speakers and topics identified at this time are given below. Numerous additional short talks will be scheduled, as well as a historical session on the early years of phytochrome research.

- J. J. Casal, Buenos Aires, Argentina - Phytochrome and carbon partitioning: Mechanisms and ecological significance.
- S. D. O'Neill, Davis, California - The photoperiodic control of flowering: Are we any closer to the mechanism?
- W. R. Briggs, Stanford, California - Early events following blue light perception in pea epicotyls and maize coleoptiles.
- K. L. Poff, Lansing, Michigan - Adaptation of phototropism: An involvement of phytochrome.
- M. Wada, Tokyo, Japan - Is the blue light photoreceptor the only photoreceptor for phototropism?
- R. E. Kendrick, Wageningen, The Netherlands - Mutants as an aid in assigning function(s) to different phytochromes.
- R. D. Vierstra, Madison, Wisconsin - Structural and functional analysis of phytochrome using transgenic plants.
- H. Smith, Leicester, U. K. - Ecological functions of the phytochrome family: clues to a transgenic programme of crop plant improvement.
- P. H. Quail, Albany, California - Phytochrome-regulated phy A gene expression.
- E. M. Tobin, Los Angeles, California - Phytochrome regulation of transcription
- E. Schafer, Freiberg, Germany - Approaches to analyse light mediated signal transduction.
- P.-S. Song, Lincoln, Nebraska - Functional implications of the phytochrome conformations.
- B. Thomas, Littlehampton, U.K. - Phytochrome Characterization - some means to an end.
- M. Furuya, Wako, Japan - Structure and function of diverse phytochrome types and gene-engineered phytochromes.
- H. Mohr, Freiburg, Germany - Success and failure in phytochrome research: What can we learn from the past?

We hope that many FAR-B members and guests will join with us to make this an informative and enjoyable symposium.

WILLIAM VANDERWOUDE

VICTOR EUGENE ADLER

Victor Eugene Adler, 67, a retired Agricultural Research Service entomologist, died January 23 at his home in Laurel. He received his master's degree in entomology from Kansas State University, served with the Navy in World War II and Korea, and joined the Agriculture Department in 1954. Before transferring to the Washington area in the early 1960's, he worked in Florida and Mississippi.

Before retiring in 1986, Mr. Adler had published 45 technical papers, served as president of the Insecticide Society of Washington and the Entomological Society of Washington and was a fellow of the Washington Academy of Sciences. He administered government research projects, designed scientific laboratories, and advised visiting foreign students. One aspect of his work was concerned with the age-old struggle of man against insects for food, in particular the cabbage looper moth; he discovered the pheromone that arouses the female loopers and thus could be used to provide some control of the insect whose larvae can destroy entire cabbage fields.

Mr. Adler had served on a committee of the Howard County public schools to revise science education. He had done volunteer work at the Phelps Senior Citizens Center in Laurel and with the Meals-on-Wheels and Pets-On-Wheels programs in Howard County.

RALPH E. HODGSON

Dr. Ralph E. Hodgson who retired from the Agricultural Research Service in 1973 died December 28, 1990 at the age of 84. He received the M. S. degree in Dairy Production from Kansas State College in 1930 and the Ph.D. degree in Biochemistry and Nutrition from the University of Wisconsin in 1941. Then he moved to ARS, Beltsville, Md.

Between 1941 and 1952, Dr. Hodgson was Assistant, Associate, and Principal Dairy Husbandman and Assistant Chief, Bureau of Dairy Industry. From 1953 to 1958, he was Chief, Dairy Cattle Branch, and from 1959 to 1972, he was Director of the Animal Science Research Division, ARS, USDA. From 1972 to 1973, he was National Program Staff Scientist for Dairy Production. He was author or co-author of more than 160 publications.

Immediately after he retired in 1973, the Department of State invited him to become a member of the Board of Trustees for the newly established (1973) International Livestock Center for Africa created by the Consultative Group on International Agricultural Research. The Board of Trustees then elected him Chairman of the Board, an office he occupied from 1973 to 1979. Also, from 1953 to 1973, he served as the Liaison Officer for the

United States. In 1947, he received the USDA Superior Service Award. In 1958, he was made a Fellow in AAAS and served as Vice President for Agriculture in 1959. In 1966, he was awarded Fellow by ASAS and the Award of Honor by ADSA. In 1971, he was awarded the Distinguished Service Award by ADSA. In 1972, he was awarded the Service Award by the National Dairy Herd Improvement Association. In 1975, he was awarded the Guest of Honor, with his portrait hung in the Dairy Hall of Fame by the Dairy Shrine Club. In 1977, he received the American Society of Animal Science International Animal Agriculture Award. Dr. Hodgson was elected into the ARS Hall of Fame in 1988.

VISITOR CENTER

Perhaps the most fruitful meeting in terms of technology transfer at the National Visitor Center was a visit by about 50 members of the Grocery Manufacturers of America. Ms. Sue Ann Ritchco, Administrator of the USDA Human Nutrition Information Services accompanied the group.

The GMA group took special interest in the efforts of ARS to work more closely with industry after the Technology Transfer Act of 1986. Each guest represented a different manufacturer, including Quaker Oats, Campbell Soup, Dow, Borden's, H.J. Heinz, Coca-Cola, Colgate-Palmolive, Dole, Hershey Foods, Kellogg, Nestle's, Ocean Spray, Pepsi, and Phillip Morris companies. At the National Visitor Center, each was given instruction on using TECTRAN, the prepublication data base on research results that have been peer-reviewed and cleared by ARS management.

Other recent guests included representatives from the National Defense University, and the Prince George's Conference and Visitor Bureau.

We were honored to host a visit by the entire 16-teacher staff of the Howard B. Owens Science Center in Greenbelt. Their program is part of the Prince George's public school system. Air and space science dominates the program. Out-of-county and out-of-state schools use the facilities for a fee. The Owens staff is working with the staff at the ARS National Visitor Center on ideas for activities in the food and farm sciences. They stated that we had already made a lot of progress in enlightening students to agricultural sciences. Of the top about eight student science projects this year, four were on agricultural topics. The top student, Angela Clark of Oxon Hill High School, worked with mentor Dr. Ross Waterman of the (animal) Reproduction Laboratory at Beltsville.

STEVE BERBERICH

BELTSVILLE RESEARCH, A CONTINUING STORY

Today scientists in the U.S., Europe, and Asia are sabotaging the cucumber mosaic virus, "the flu bug of the plant world" (it attacks at least 775 plant species) with S-CARNA 5, short for "cucumber mosaic virus - associated RNA number 5". This parasite, a small nucleic acid called a viral satellite, dooms the virus by robbing it of plant enzymes that both need to multiply, said Chemist Jacobus M. Kaper of the Agricultural Research Service Microbiology Laboratory at Beltsville, Md.

The first viral satellite was found in 1962 by British scientist B. Kassanis. ARS Researcher at Beltsville, I.R. Schneider (deceased) found the second one in 1969. In 1976, Kaper discovered the third one, the first known to modify the mischief caused by a crop disease. Since then, Kaper and his ARS colleagues have worked to exploit CARNA 5's ability to change the severity of the cucumber mosaic disease and have been supplying satellites to researchers for tests in Italy, Japan, and China. Thus when cucumber mosaic virus destroyed an estimated 30,000 acres worth of tomato production-equivalent to about 300,000 tons of tomatoes-in 1988 in southern Italy, it was not surprising that tests of CARNA 5 would be conducted the next year. In 1989, Kaper, ARS chemist Marie E. Tousignant, and M. S. Montasser of the University of Maryland supplied S-CARNA 5 inside of a weak strain of the virus to D. Gallitelli and colleagues in Italy's University of Bari. About 200 tomato seedlings were inoculated with the satellite and placed in a commercial field in the Basilicata region near the heel of the Italian "boot". "Less than 5% of the vaccinated plants got virus symptoms". Kaper notes that these results, which were obtained in the middle of an epidemic, "gave...the strongest evidence to date that the satellite can ward off cucumber mosaic virus for growers. It was at least 95% successful in 'vaccinating' plants against the virus". This compares with the 40% of unprotected plants that died despite the application of pesticide sprays to kill the aphids that transmit the disease.

Articles giving detailed results of these Italian tests and of earlier tests at Beltsville appear in the January 1991 issue of Plant Disease.

JIM DE QUATTRO



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

April, May & June 1991

PRESIDENT'S REPORT

The annual meeting of the Friends of Agricultural Research at Beltsville (FAR-B) was convened at 2:00 p.m. on March 12, 1991, in the Theatre Room of the National Visitor's Center (Log Lodge). Twenty-seven members energetically participated. (FAR-B currently has 126 members.)

Before the start of business, a brief moment of silence memorialized the previous year's departed members, T.C. Byerly, Ralph Hodgson, Martin Weiss, Ruth Busbey, Max Chambers, and Victor Adler. The minutes of the 1990 meeting were read and approved. Treasurer, Frank Longen reported the year-end status of the two audit-approved bank accounts -- the Regular account (\$12,561) and the Conference and Symposia account (\$30,806). The Treasurer's report stood approved as read.

Dr. Waldemar Klassen, who retired during 1990, was remembered. Dr. Klassen conceived the idea of what became the Friends of Agricultural Research - Beltsville (FAR-B), and it was because of his efforts that it came into existence in 1986. He was therefore named first Honorary Lifetime member of FAR-B. He is now working with the FAO International Atomic Energy Agency in Vienna, Austria.

BARC Director, Dr. Essex E. Finney, Jr. was the guest speaker. He expressed appreciation for the continuing support FAR-B gives to ARS research; and gave special notice to the active part FAR-B played in the land issue of 1980-1981, when GSA threatened to sell off valuable parcels of land. No action can now be taken to sell BARC land without Congressional approval. Dr. Finney also advised that BARC agreed to sell Metro Rail 70 acres for a car storage and inspection yard to be built in 1993 on BARC land north of the Beltway; and that BARC was negotiating with GSA to dispose of 8.8 acres near Greenbelt to construct a new Federal District Courthouse.

Dr. Finney used a flip-chart to demonstrate the use of budgeted monies to continue further modernization of the buildings and facilities at the Beltsville Agricultural Research Center. Among other projects, these funds provide for the rebuilding of the Range 2 greenhouse complex, a new small animal building for the Human Nutrition Research Center near Building 308 and a new 70,000 square foot plant science laboratory building for BARC-West.

Dr. Finney introduced William J. VanDerWoude, Co-chairperson of Beltsville Symposium XVI to occur during September 1991. Dr. VanDerWoude summarized progress on planning and speaker commitments for the 1991 symposium entitled, "Photomorphogenesis in Plants: Emerging Strategies for Crop Improvement". He emphasized the historical significance of the

symposium in its recognition of the 40th anniversary of the beginning of phytochrome research at Beltsville.

The FAR-B members present elected by acclamation the following members and officers to the Board of Directors:

President:	Al Piringer
Vice President:	William Bailey
Treasurer:	Frank Longen
Member	Angus Hanson
Member	John Moseman

The other members of the Board are Bill Hollis, George Irving, Russell Steere, and Jane Wall.
ALBERT A. PIRINGER, President

BELTSVILLE SYMPOSIUM XVI

Final arrangements are underway for the 1991 Symposium, "Photomorphogenesis in Plants: Emerging Strategies for Crop Improvement", to be held September 22-26. A total of 120 speakers and other participants are preregistered at this time; half of them are from foreign countries. We anticipate that continued registration by Beltsville Area scientists and staff and others from the Mid-Atlantic region will lead to the budgeted registration level of 250. All FAR-B members are welcome and invited to attend the symposium, or a portion of it. The FAR-B registration fee is \$25 and includes attendance and refreshment breaks at all sessions, as well as the reception on Sunday evening, September 22. Tickets for the reception only are \$10. Tickets for the banquet, to be held Thursday evening, September 26, are \$30. Please contact Mrs. Hupfer (344-4628) to register or for additional information. The Symposium promises to be a very informative and memorable event, commemorating forty years of phytochrome research that began with discoveries by Beltsville scientists. We are very grateful to FAR-B for its support of the Symposium and hope that it will be possible for many of you to join us in this celebration.

WILLIAM J. VANDERWOUDE
and STEVEN J. BRITZ
Symposium XVI Co-chairmen

ORVILLE A. VOGEL

Orville A. Vogel died on April 12 in Lacey, Washington. Orville was a world-renowned USDA-ARS wheat breeder. He spent his entire 42-year career stationed at Washington State University in Pullman, retiring in 1973. Orville's hallmark was his unique ability to combine science with practice. He was a "hands-on" breeder and a master at subjecting his breeding materials to critical field situations in order to identify the most superior segregates. Norman Borlaug, winner of the 1970 Nobel Peace Prize, credited Vogel with developing the semidwarf germplasm that he used to bring about the Green Revolution. His semidwarf wheat varieties raised northwestern USA wheat production by over 25%. His variety, Gaines, still holds the world wheat yield record at 209 bushels per acre. A skilled mechanic and ingenious inventor, Vogel designed and build threshers, planters, and other experimental machines that are still used

in cereal improvement projects around the globe. Vogel had received many prestigious awards. They included: an Honorary Doctorate of Agriculture, University of Nebraska; National Medal of Science; State of Washington Centennial Hall of Fame; the USDA Agricultural Research Service Hall of Fame; and the John Scott Award.

DIRECTOR'S COMMENTS

The Maryland Congressional delegation continues to demonstrate strong interest and support for the research programs at the Beltsville Agricultural Research Center. During the past months, John Berry, Legislative Director to Congressman Steny Hoyer, and George Leventhal, Legislative Assistant to Senator Barbara Mikulski, visited BARC to be briefed on current research projects and to discuss the progress of the Modernization Program. The President's FY 1992 budget includes significant new funding for BARC, most notably \$20 million for upgrading buildings and facilities.

An architectural and engineering firm has been selected to design a new Plant Sciences Building for BARC. This will be a 70,000 square foot office and laboratory complex to house the Fruit Laboratory, Vegetable Laboratory, and the Florist and Nursery Crops Laboratory. Dr. Judith B. St. John has worked with the Research Leaders and ARS engineers to develop the design concepts for this new building. The President's FY 1992 budget proposes \$13.2 million for the construction of this building.

The Secretary of Agriculture will present Honor Awards to selected USDA employees on June 12, 1991. Three awards will be given to Beltsville employees. The Animal Improvement Programs Laboratory will receive the USDA Distinguished Service Award -- the highest honor that can be given by the Secretary of Agriculture. This group award recognizes the sustained outstanding contributions this Laboratory has made over the years toward improving the genetic capacity of U.S. dairy cattle. Duane Norman is the Research Leader of the Laboratory. Also, Rufus Chaney, Research Soil Scientist, Soil-Microbial Systems Laboratory, and Howard Brooks, Acting Associate Deputy Administrator, NPS, will be honored with the USDA Superior Service Award. These scientists have made major contributions to the ARS programs at Beltsville and nationally. We are pleased to see them receive these honors.

Mrs. Edward Madigan, the wife of the new Secretary of Agriculture, visited BARC in May along with the wives of other high level officials in USDA. During her tour of the Center, Ms. Madigan visited Laboratories involved in research on animal reproduction, plant biotechnology, new crops for the florist and nursery crops industry, and human nutrition. The group also visited with Joe Howard, Director of the National Agricultural Library.

Some recent changes have been made in Research Leaders. Robert Wright is the new Research Leader of the Environmental Chemistry Laboratory, replacing Jack Plimmer, who retired in December. Dr. Wright comes to BARC from the ARS Appalachian Soil and Water Research Laboratory, Beckley, West Virginia. Judith Hallfrisch has been selected to be the new Research Leader of the Carbohydrate Nutrition Laboratory. She will replace Sheldon Reiser, who

retired last year.

Dr. Hallfrisch comes to BARC from the National Institutes of Health, where she was a Senior Fellow. James Anderson has moved from the Plant Hormone Laboratory to become the new Research Leader of the Weed Science Laboratory. The Plant Hormone Laboratory is being combined with the Horticultural Crops Quality Laboratory, where Alley E. Watada will continue as the Research Leader.

Gerald Combs has retired from the National Program Staff after many years of service as the National Program Leader for human nutrition research in ARS. Jackie Dupont, who worked at BARC early in her career, has joined the NPS, replacing Dr. Combs. Dr. Dupont participated with an outside panel of scientists in a review of the programs at the Beltsville Human Nutrition Research Center on May 16-17, 1991. The human nutrition research programs have a long tradition of excellence at Beltsville, and we plan to build upon this tradition during the years ahead.

ESSEX E. FINNEY, JR.
Director, BA

MEMBERSHIP RENEWALS

We wish to thank all of our members who have renewed their membership for the 1991 membership year (which runs through March 31, 1992). We have yet to receive renewals from a few members, and we suspect that this has been an oversight on their part. Please help us to avoid sending out further reminder notices by sending your renewal payment soon. We want to give a special thanks to several of our members who sent an extra amount with their dues payments. This is very helpful in view of our increased mailing costs. In that regard, we have discontinued sending acknowledgement notices when dues are received. Your canceled check will serve as your receipt.

Our membership total now stands at 126. The help of our members in recruiting new members is always welcome.

FRANK LONGEN, Treasurer

BELTSVILLE SYMPOSIUM XVII

Groundwater is estimated to supply 40-50% of U.S. drinking water needs, and domestic reliance on groundwater is on the increase. In an attempt to maintain or improve groundwater quality, both surface and subsurface components of the hydrologic cycle must be carefully evaluated.

The most common sources of groundwater contamination are from animal and human wastes, industrial wastes, petroleum products and landfill leachates. However, due to the large area devoted to agricultural activities, and the need to maintain high agronomic yields, agriculture too can have a significant impact on groundwater quality. Consequently, the 1992 Beltsville Symposium is dedicated to understanding the scope of groundwater contamination and to discuss

recent advances in minimizing the effect of agriculture on groundwater contamination. The symposium has been temporarily titled "Agricultural Water Quality Priorities".

To date program development and speaker selection is progressing satisfactorily. The symposium will be held on May 6-8, 1992. The three-day symposium will consist of several sessions focussing on recent advances in both surface and groundwater research. All oral presentations will be by invitation, and we are planning on having two poster sessions, consisting mainly of volunteered papers. We will attempt to have the papers published in a peer-reviewed journal.

TIMOTHY J. GISH
and ALI SADEGHI
Symposium XVII Co-chairmen

PAUL E. JAMES

Paul E. James, 78, a retired agricultural engineer at the Beltsville Agricultural Research Center died of congestive heart failure May 10 at his home in Adelphi.

Mr. James was born in Lafayette, Ind. He graduated from Indiana University and received a master's degree in physics there. He worked for manufacturing companies in various parts of the country before moving to the Washington area in 1948 when he began his career at the Beltsville Research Center. Projects on which he worked over the years included ways to process garbage into swine feed and ways to curb fruit flies by releasing sterilized flies that would be unable to breed. He retired in 1980.

VISITOR CENTER

Susan Criss, from Pittsburgh, PA was one of the winners of the Westinghouse Science Service Awards. As part of her award, she chose to visit the Beltsville Agricultural Research Center and spent time with Dr. James Smith, Vitamins and Mineral Lab. Ms. Criss learned about ARS in July 1990 when she came to the National Visitor Center with the Pennsylvania State Governor's School of Agricultural Research. That group of students had been greeted by R. Dean Plowman, Administrator.

Congresswoman Louise Slaughter, Agricultural Advisory Committee, NY gave a presentation at the NVC and visited several labs.

The Oregon Wine Growers visited with Dr. Faust, Fruit Laboratory and toured the Center.

The Illinois Farm Bureau and the Pennsylvania Farm Association visited and toured the Center.

There were several groups from the Peoples' Republic of China

There were 3 colleges that visited: Towson State University from MD, Delaware Valley

College, DE, and William & Mary College, Williamsburg, VA.

There were 9 grade school/high schools that visited the Agricultural Research Center during the month of April. There were also two colleges: Alfred State University of New York and Loyola College of Baltimore.

The American Institute for Free Labor Development brought a group of 24 labor leaders from Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela. They were interested in chemical use, land use, and the environment.

The National Association of Conservation Districts Committee were here for meetings on April 4 & 5 and toured the Center on the afternoon of April 5th. Dr. Kearney and the Hydrology Lab were involved with this group.

Mr. A.J. William and Mr. W.W. BeBoo, European Fertilizer Manufacturers Association from Belgium visited with Dr. Meisinger and Dr. Starr, Environmental Chemistry Laboratory.

The Smithsonian Folk Life Festival Task Force met at the Visitor Center and toured the Center.

The Peoples' Republic of China sent a delegation to Beltsville, arranged by Dr. T.C.Tso. They toured and met with Dr. Faust, Fruit Lab and Dr. Johnson, Reproduction Lab.

During May there were 22 grade/high schools that visited the Center.

The Tetrapartite meetings, which included administrators of Agricultural Research Agencies in the US, Canada, United Kingdom and France met at NAL, the Arboretum and the NVC. They finished their meetings with a tour of the Center and a fish fry at the Log Lodge.

STEVE BERBERICH, Director
National Visitor Center

BELTSVILLE RESEARCH, A CONTINUING STORY

A new natural biosoap kills sweetpotato whitefly nymphs, a pest that devastates vegetable, cotton and ornamental crops worldwide. Chemical controls are not always effective due to insect resistance. Similar to commercially available soaplike products now used in greenhouses, the biosoap dissolves the waxy cuticle of the pest. The product is made of extracts from a species of greenhouse-grown *Nicotiana*, a relative of the tobacco plant. The extract, having its own wetting agent, can be mixed with water and sprayed on plants.

A new use for neem seed oil has been found by ARS scientists working with W.R. Grace and Company. They're using it to control rust on beans and snapdragons as well as powdery

mildew on numerous ornamentals. Neem seed extracts already are being used as a botanical insecticide. But this is the first time the oil has been used successfully against fungal plant pathogens. Scientists are looking for other natural products from the tropical neem tree that may reduce dependency on synthetic pesticides.

Two proteins have been found in Africanized honey bees that could be the basis for a precise field test to distinguish them from domestic honey bees. While Africanized honey bees are more defensive than domestic honey bees, stinging in greater numbers and with less provocation, the two cannot easily be distinguished. Current identification tests require special training and lab equipment. A field test based on the presence or absence of the two proteins could be designed so it would not require any lab equipment beyond the test kit itself. Such a kit would be useful to beekeepers, apiary inspectors and researchers by providing identifications within a short period of time. USDA continues to run trap lines on the Mexican border with Texas to monitor any crossing of the bees. Africanized honey bees are descendants of bees brought from Africa to Brazil in 1956 in hopes of breeding a honey bee better adapted to the South American tropics. The bees escaped in 1957 and their offspring spread north and south; the first migrating swarm of Africanized honey bees reached the United States in October 1990.

Loading up on carbohydrates not only improves stamina during sustained, strenuous exercise such as long-distance running and cycling, it also cuts body losses of two important trace elements. Urinary losses of chromium and zinc are known to increase under stressful exercise. But when eight men doubled their carbohydrate intake 3 days before sustained exercise, their losses of chromium and zinc dropped an average 23 and 28 percent, respectively. Losses of potassium, magnesium and calcium were not altered. During the test, the men cycled ergometers submerged in 77 degree F water in 20-minute increments for a total of 160 minutes. Consuming the extra carbohydrates also helped them increase the amount of work they completed with less stress to the body, indicated by lower blood levels of the stress-hormone cortisol.

Copper-deficient diets that are high in sugar may turn certain iron compounds stored in rats' livers into a toxic substance that can't be used. And this could have implications for people. The finding, from a series of studies, explains why young rats routinely developed severe anemia, organ damage and died prematurely from copper-deficient diets only when the main source of carbohydrate was sugar - specifically fructose sugar. When it was starch, there were no ill effects. Injecting these animals with red blood cells cleared up the anemia and prevented organ damage, indicating the animals could not use the iron they had stored in their livers. Finally, giving fructose-fed animals a drug to remove iron from their bodies prevented most of the damage, indicating their iron was indeed toxic. Whether this occurs in people has not been studied. But Americans typically consume less than the minimum suggested intake of copper, and our fructose intake is increasing. Also, high alcohol consumption may have the same effect as fructose because we metabolize the two substances similarly. Research shows the danger lies in eating too much refined fructose from table sugar - which is half fructose - and from high fructose corn sweeteners, not in eating fruit and other fructose-containing plant foods.



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

July, August & September, 1991

PRESIDENT'S REPORT

The mid-September, 1991, Symposium XVI about Photomorphogenesis in Plants is imminent; and the concurrent planning and organization for Symposium XVII about Water Quality in Agriculture is already well-advanced. This is indeed a hectic time for Symposia organizers and FAR-B representatives. The respective chairmen provide information about progress and plans elsewhere in this newsletter.

During 1990 and 1991, FAR-B has funded a summer "internship", at Beltsville, for an area high school student. In 1990 Susan Dryburgh from Upper Marlboro significantly helped with the variety of activities at the Visitors' Center. Susan is now a pre-medical student in a Pennsylvania college. During the summer of 1991, Theresa Weaver from Oxon Hill, was a student aide in the Publication Branch of the ARS Office of Information where she was exposed to all aspects of agricultural research. Theresa is now a student of genetics at the University of Maryland as well as being a part-time aide in a BARC plant physiology laboratory.

Separately you will have received information about a "roving" Livestock Painting Exhibit that will be at the National Agricultural Library during September 13 to October 31. You should also have received an invitation to participate in the opening ceremony and reception for which FAR-B is a co-sponsor.

ALBERT A. PIRINGER, President

BELTSVILLE SYMPOSIUM XVII

The speaker agenda for the Beltsville Symposium, "Agricultural Water Quality Priorities, A Team Approach for Conserving Natural Resources" has been finalized. Twenty-seven internationally known water quality specialists from federal and state agencies, as well as major universities have formally accepted invitations, each will speak for 30 minutes. Formal proceedings will be published in the Journal of Environmental Quality.

We are presently soliciting participation for the two poster presentations. Letters of invitation for poster presentations were mailed out two weeks ago, and are receiving favorable responses. Additionally, the first brochure announcing the symposium has been finalized and will be mailed out the week of September 16th. For information with regard to the poster presentations please contact Dr. C. B. Coffman, Weed Science Laboratory, (301) 344-3398 or FAX (301) 344-8091

TIMOTHY J. GISH
and ALI SADEGHI
Symposium XVII Co-chairmen

BELTSVILLE SYMPOSIUM XVI

This year's symposium is almost upon us. It is entitled, "Photomorphogenesis in Plants: Emerging Strategies for Crop Improvement". The symposium will be held September 22-26 at the Conference Center, University of Maryland University College, in College Park Maryland. The Final Announcement and FAR-B registration form for the symposium were mailed to all members in late August. Please contact the symposium office (344-3607) if the information was not received or to register at the last minute.

The symposium promises to be an excellent meeting. In addition to the many reports of significant research advances the symposium will host several USDA and visiting scientists who contributed to the early phytochrome discoveries at Beltsville. We hope as many of you as possible will join us for all or some of the events. A brief schedule of events follows.

Sunday 9/22/91	Registration, Main Concourse	1:00 - 10:00 pm
	Reception, Fort McHenry Room	7:00 - 10:00 pm
Monday	Sessions 1 - 3, Auditorium	8:15 am - 5:50 pm
	Opening Remarks	
	Reflections on the Early Years of Phytochrome Research (Organized and chaired by Dr. Albert A. Piringier)	
	Phytochrome Function in the Natural Environment	
	Photoperiodism	
	Poster Session I, Founders Room	7:00 - 10:00 pm
Tuesday	Sessions 4 - 5, Auditorium	8:15 am - 5:40 pm
	Blue Light Photoreception, Phototropism, and UV Photoreception	
	Phytochrome Mutants and Transgenic Plants	
	Poster Session II, Founders Room	7:00 - 10:00 pm
Wednesday	Session 6, Auditorium	8:00 - 11:30 am
	Phytochrome regulated gene expression	
	Excursion (optional), to St. Michaels, MD	12:00 noon - 10:00 pm
Thursday	Sessions 7 - 9, Auditorium	8:00 am - 5:30 pm
	Light mediated signal transduction	
	Phytochrome structure and properties	
	Opportunities and Future Research Directions	
	Social Hour, Fort McHenry Room	6:30 - 7:30 pm
	Banquet	7:30 - 10:00 pm
	FAR-B Award presentation	
	Speaker: Dr. H. Marc Cathey	
	National Chair for Florist and Nursery Crops Review	
	National Program Staff, ARS, USDA	
	Title: "Our Global Garden"	

WILLIAM J. VANDERWOUE
STEVEN J. BRITZ
Co-Chairs, Symposium XVI

DIRECTOR'S COMMENTS

R. Dean Plowman, Administrator of ARS, has announced a new structure for the National Program Staff (NPS). Five Associate Deputy Administrators (ADA's) will now report to Ed Knipling, the Deputy Administrator for National Programs. The five program groups are:

Natural Resources -- J. van Schilfgaarde, Acting ADA

Plant Sciences -- H. Brooks, Acting ADA

Animal Sciences -- R. Oltjen, ADA

Genetic Resources -- R. Gerrits, Acting ADA

Agriproducts & Human Nutrition Sciences -- J. Robens, Acting ADA

H. Marc Cathey has taken on a new assignment for ARS. In September, Dr. Cathey became National Chair for Florist and Nursery Crops Review, reporting to E. B. Knipling. In this new position, Marc will be responsible for conducting an intensive review and evaluation of the production and marketing research needs of the florist and nursery industries. These two industries are among the fastest growing areas in U.S. agriculture. ARS is very much interested in strengthening its programs to support American growers as they work to meet the domestic demand and develop export markets. Dr. Cathey's review will play a significant role in the development of the ARS long-term research agenda for these important industries.

Three research scientists in the Livestock and Poultry Sciences Institute recently received national recognition for their accomplishments. Dale Waldo received the Pioneer Hi-Bred Forage Award from the American Dairy Science Association for outstanding research contributions in forage production, processing, storage and utilization. Gerald Huntington was given the American Feed Industry Association Award for his innovative studies of nutrient metabolism in the gut, liver, and other tissues in growing and lactating cattle. Larry Johnson received the Animal Physiology and Endocrinology Award from the American Society of Animal Science. Dr. Johnson has made outstanding advances in techniques for sorting sperm to pre-select the gender of livestock offspring. Larry has agreed to take on broader leadership responsibilities at BARC. On October 1, he will become Research Leader of newly formed Germplasm and Gamete Physiology Laboratory. This new Laboratory will place emphasis upon cryopreservation of sperm and embryos; embryonic development in the turkey; endocrinology of reproductive processes; and gender pre-selection through sexing of gametes.

Finally, the firm of Hellmuth, Obata and Kassabaum of Washington, D.C., has started the design of a new Plant Sciences Building for BARC. The building will be located west of Building 003 (the Administrative Building). It will house the horticultural crops programs at BARC. The design should be completed in the summer of 1992, and construction is scheduled for 1993. The President's FY '92 budget includes construction funding for the new building.

ESSEX E. FINNEY, JR.
Director, BA

JOHN G. SHAW

We received word recently that John G. Shaw of Riverside, California, passed away on May 4, 1991. Mr. Shaw has been a FAR-B member since 1987 and was a career scientist with ARS for over 35 years. He spent most of his career as a Research Entomologist at the ARS laboratory in Riverside. Mr. Shaw was a world authority on fruit flies and authored numerous publications in this field of research. Mr. Shaw was a graduate of the University of Kansas in 1930. Following his retirement he served as a Consultant to APHIS on fruit fly control activities in Mexico. Mr Shaw was 82 years old at the time of his death.

FRANK LONGEN

VISITOR CENTER

The Maryland Agricultural Commission, advisory board to Maryland's Secretary of Agriculture, Wayne A. Cawley, Jr. used our conference facilities for their July 10 meeting. We arranged a welcome by our personnel, as well as a briefing on our educational program. The group had their meeting followed by a tour of the Research Center. A luncheon was also arranged for the Commissioners. FAR-B Board members George Irving and John Moseman attended the luncheon. The Ag Commissioners are leaders in Maryland agriculture and it is important that they are aware of the function and activities of the Beltsville facility.

The National Agricultural Library will be the venue for the opening of an educational exhibit of Seeds of Change. This is a 12,000-square foot exposition that will later be housed at the Smithsonian Museum of Natural History celebrating and teaching cultural change in the 500 years since Columbus discovered America. It is rich in agricultural information. Arrangements are proceeding for a December 1991 premier and workshop on the educational exhibit. Details on that ceremony will be forthcoming.

STEVE BERBERICH, Director
National Visitor Center

LIVESTOCK PAINTINGS EXHIBIT AT NAL

An exhibit of farm animal paintings by some of the most famous artists of the last 150 years, including Jamie Wyeth, Seavey Lucas, Thomas Sidney Cooper and Edmund Gill, will begin a one-year national tour at the National Agricultural Library (NAL) in Beltsville, Maryland, September 13.

The exhibit, entitled "The Art of American Livestock Breeding" and sponsored by the American Minor Breeds Conservancy, will be open to the public, free-of-charge, in the NAL lobby through October 31, 1991 from 8:30 a.m. to 4 p.m., Monday through Friday (except holidays).

The library will hold an opening ceremony at 3:15 on Friday, September 13, in the NAL lobby. Speakers will be announced later. Following the ceremony there will be a reception sponsored by the Associates of the National Agricultural Library, Inc., and Friends of Agricultural Research-Beltsville, Inc. Attendance at the ceremony and reception is by invitation. FAR-B members were sent invitations. If you did not receive one or would like another one,

please contact Virginia Hupfer, 344-4628.

Included in the exhibit are paintings of cattle, horses, sheep, swine and poultry. Many of the portraits were commissioned by the owners of prize-winning or top performing animals. The paintings have been loaned for the exhibit by art collectors in the United States and England.

"This exhibit speaks to the cultural and historical importance of traditional breeds of livestock," said R. John Dawes, curator of the exhibit. "Though we are a nation descended from farmers, few of us can identify a breed of livestock. Knowledge of this valuable part of our heritage is nearly lost, along with the genetic diversity these breeds represent." Dawes said the exhibit will be of interest to animal scientists, farmers, historians, artists, art collectors and anyone who appreciates animals.

BRIAN NORRIS

BELTSVILLE RESEARCH, A CONTINUING STORY

Enzymes like those produced by the soil fungus *Trichoderma viride* may be used one day as a tool to both defend and kill plants. ARS scientists found that one enzyme, known as EIX, promotes ethylene production in some varieties of tobacco. Ethylene is a plant growth hormone that causes fruit to ripen and cells to age. The EIX enzyme rapidly induces ethylene, so researchers are intrigued by its possible use as a natural herbicide. Another potential use: A tool to speed the screening of resistant traits against disease. Scientists are continuing research to fully understand EIX and its possible applications. Also, studies of the enzyme may lead to new understanding of ethylene production and control of postharvest losses of fruits and vegetables.

Plant Hormone Lab

James D. Anderson/Rosannah Taylor/Bryan A. Bailey

The pressure inside tomato cells can affect how fast the fruit ripens. That's because pressure influences how fast a precursor chemical, ACC (1-aminocyclopropane-1 carboxylic acid) is transported to sites within the cell where ACC is converted into the ripening hormone, ethylene. Intermediate cell pressure induces more ethylene production and tends to ripen tomatoes faster than those with higher or lower pressure. Researchers are studying ways to manipulate cell pressure, ACC transport, or both, to control ethylene production. Too much ethylene, or producing it at the wrong time, causes overripening, leading to reduced quality, spoilage and an estimated loss of \$30 million per year in the United States. If cell pressure can be modified, the shelf life of various perishable produce can be extended, while at the same time keeping it firm enough to handle without bruising.

Plant Hormone Lab

Robert A. Saftner

Americans may be consuming substantially more calories than nutrition surveys show, according to an analysis of 12 long-term studies. The 266 volunteers-from 21 to 64 years old-reported consuming an average 18 percent fewer calories on food intake records prior to the studies than they actually needed to maintain weight during the studies. There was no difference

in reporting based on the volunteers' gender, age or weight. Eighty-one percent underreported their food intake, 8 percent overreported and 11 percent were accurate to within 100 calories. If substantiated in larger studies, the findings have far reaching implications: The vast majority of food and nutrient intake data comes from individuals recalling or recording what they ate. These data are used by federal agencies to judge the nutritional status of the U.S. population and identify low intakes of vitamins or minerals. A higher food intake could mean that the "problem nutrients" - such as vitamin B6, zinc, magnesium and iron for women - are not such a problem. It could also explain why average body weight of the U.S. population increased between the late 1960's and late 1970's while reported food intake went down.

Beltsville Human Nutrition Research Center
Walter Mertz

After 5 years, herbicides have yet to show up in groundwater below 14 feet, where they might otherwise migrate into drinking water. The long-term study at Beltsville, Md., compares pesticide movement under standard tillage with "no-till" planting practices under conditions common in the Corn Belts. The herbicides (atrazine, alachlor and cyanazine), the amounts used, the soil type and the rainfall patterns in Beltsville are all similar to those in the Midwest. On no-till fields, seeds are planted without plowing under previous crop residues. Among the findings to date: Regardless of the type of tillage, herbicides are mainly confined to the upper 12 inches of topsoil and none have been found in groundwater below 14 feet. No-till plots have substantially less herbicide residue in the top 4 inches of soil than conventionally tilled fields, but more residue in the next 8 inches. The pesticide levels in groundwater sampled at 5- to 36-foot depths have usually been well within health advisory levels of the Environmental Protection Agency. Where the residues approach or exceed advisory levels upon initial testing, they drop back within 2 or 3 days. This research project will continue another 4 years, and the data will be used to validate computer models to predict chemical movement in each major crop-growing region of the country.

Pesticide Degradation Lab
Allan R. Isensee/Ali Sadeghi

New findings underscore why fish oil capsules may not be recommended for diabetics. The capsules significantly altered levels of some hormones and opiates involved in metabolizing glucose and fat in 40 healthy, nondiabetic men. After taking 15 grams of fish oil daily for 10 weeks, the men had lower levels of the hormones glucagon, cortisol - which works against insulin - and somatomedin-C. The levels of beta endorphin - an opiate secreted along with glucagon - were also reduced. On the other hand, blood sugar levels increased as had been reported by other researchers. Taking vitamin E along with fish oil capsules did not reverse the changes in blood glucose, hormones or opiates except for somatomedin-C. Some studies suggest that fish oil may be beneficial in reducing incidence of heart disease by lowering blood triglycerides and other lipids, and increasing tissue sensitivity to insulin. However, in diabetics, its effects on some central hormones involved in glucose metabolism could be detrimental.

Carbohydrate Nutrition Lab, Beltsville Human
Nutrition Research Center
Sam J. Bhathena



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

December/January

NEW YEAR'S GREETINGS TO ALL

PRESIDENT'S REPORT

Friends of Agricultural Research-Beltsville, Inc. (FAR-B) is six years old and your loyal membership has enabled our organization to provide reliable and meaningful support to BARC research and related activities and particularly to the annual BARC symposia, the National Visitors Center, and BARC's scientific and community concerns and events. Our quarterly newsletter keeps you informed about our involvement in BARC's affairs as well as about its fiscal status and research activities.

The mid-September, 1991, Symposium XVI on the subject of photomorphogenesis in plants was successful and enlightening; the early May 1992 Symposium XVII on water quality priorities is impending; and the organization and planning for the 1993 Symposium XVIII about biopesticides is underway.

BARC Poster Day 1992 will be held on Tuesday, March 10 in the newly renovated Bldg. 003 from 9:00 a.m. to 4:00 p.m. This second annual display of research results fosters communication among scientists at BARC. About 85 scientists are expected to use this method to demonstrate their research. All Post Doctoral Research Scientists and new scientists with less than 3 years of BARC service are expected to participate.

Propitiously, this year's Poster Day coincides with the Annual Meeting of FAR-B which means that FAR-B members will have an opportunity to study the research of new BARC scientists in the morning and can share in the FAR-B fellowship and the excitement and help influence its affairs in the afternoon.

Reserve March 10 now on your 1992 activities calendar. Remember the morning for BARC Poster Day and the afternoon for the FAR-B annual meeting and election of officers.

ALBERT A. PIRINGER, President

BELTSVILLE SYMPOSIUM XVI

The symposium, entitled, "Photomorphogenesis in Plants: Emerging Strategies for Crop Improvement", was held September 22-26 at the University of Maryland University College Conference Center. It honored the fortieth anniversary of the beginning of phytochrome research in 1951 at Beltsville. The first session was chaired by Albert A. Piringer, President of FAR-B, and featured comments by many of the Beltsville and visiting scientists who worked in the

original phytochrome group.

The symposium also served as the 1991 Symposium of the European Plant Photomorphogenesis Group. Total registration for the symposium was 223, with 87 from foreign countries and 30 from Beltsville. The 3.5 day scientific program consisted of 58 speakers and 98 posters. The facilities, program, and scientific content were all evaluated as excellent by the participants. The current rapid rate of research advance in plant photomorphogenesis was clearly evident at the symposium.

Tours of BARC and the historical phytochrome building (B-006) were conducted before and after the symposium. Ninety-eight registrants participated in the symposium excursion to St. Michaels, MD on Wednesday afternoon-evening. At the banquet the participants enjoyed the presentation, "Our Global Garden", given by H. Marc Cathey, now with the National Program Staff. The FAR-B Distinguished Scientist Award was presented to Mrs. Vivian K. Toole for her pioneering contributions to knowledge of the regulation of seed germination by light and temperature, and for her contributions to the discovery of phytochrome.

Preparation of the symposium proceedings, to be published as a special issue of the journal, Photochemistry and Photobiology, is in progress. Most of the manuscripts have been received and are undergoing peer review. A late-summer publication date is anticipated.

The organizers express their gratitude to FAR-B and all who assisted with the symposium, especially to Virginia L. Hupfer, Symposium Secretary, for her many contributions to help make Symposium XVI successful and productive.

WILLIAM J. VANDERWOUDE
STEVEN J. BRITZ
Co-Chairs, Symposium XVI

BELTSVILLE SYMPOSIUM XVII

Plans for Beltsville Symposium, "Agricultural Water Quality Priorities, A Team Approach for Conserving Natural Resources" are progressing smoothly. The symposium will be held in the BARC-W Auditorium, Building 003, May 4-8, 1992. Twenty-seven internationally known water quality specialists will present topics ranging from the biological impact of surface water quality to stochastic descriptions of chemical transport through soil. The oral presentations will eventually be published in the Journal of Environmental Quality. Additionally, there will be 70 poster presentations having to do with both basic and applied water quality research.

TIMOTHY J. GISH
ALI SADEGHI
Symposium XVII Co-chairmen

DIRECTOR'S COMMENTS

Dr. George Papavizas, Research Leader of the Biocontrol of Plant Diseases Laboratory at Beltsville, retired at the end of December 1991. Dr. Papavizas is internationally known for his pioneering contributions in ecology and biological control of soilborne plant pathogens. His research has culminated in the first registration by EPA of a naturally occurring beneficial fungus, Gliocladium virens, for the biological control of damping-off diseases of ornamentals and other crop plants. He was the organizer of the 1980 BARC Symposium on Biocontrol in Crop Production and the 1989 Symposium on the Rhizosphere and Plant Growth. George has received the USDA Superior Service Award and the 1988 ARS Outstanding Scientist of the Year Award. We will greatly miss his outstanding leadership at Beltsville.

The ARS budget for FY 1992 went from \$624 million to \$660 million. ARS also received about \$50 million for various facility projects nationwide. Beltsville received about \$5 million in program increases and \$16 million to continue the BARC Modernization Program. The largest amount of funding (\$13.2 million) is to be used to construct a new Plant Sciences Building at BARC. The design of the building is almost 35 percent complete with the expectation that construction will begin within the coming year. Program increases will strengthen research in human nutrition, water quality, food safety, bees, global change, and crop protection.

In January or early February, we will be moving back to Building 003 - the Administration Building. The final touches are being made to this modernization project. The building will include a remodeled auditorium, cafeteria, and expanded conference room facilities. The Area Director and the Deputy Area Directors for Plant Sciences, Natural Resources, Product Quality and Development, and Facilities Operations and Management will be housed in Building 003. It will also house the Administrative Branch, the Nurse's Office, the Credit Union, and the Germplasm Resources Information Network (GRIN) Staff. We are planning a dedication and open house in the spring to show off this completed project and also Building 007 which is nearing completion. More information will be shared with you later.

Finally, we will be putting major emphasis on updating the Land Use Master Plan for BARC in 1992. We have made this our Number 1 priority for agency funding this year. An outside consultant will be brought in to provide the expertise required to revise the existing plan and to develop a coherent concept for the use of this valuable land resource for the benefit of agriculture and society.

Thank you all for your support over the past years and best wishes for good health and continued prosperity in 1992.

ESSEX E. FINNEY, JR.
Director, BA

WHAT FAR-B MEMBERS HAVE MADE HAPPEN

Friends of Agricultural Research-Beltsville, Inc. (FAR-B) is nearing the end of its sixth year of existence so it's high time the membership received a detailed account of what the organization has been able to accomplish with the funds obtained from annual dues, other funding sources, and the devotion and expertise of members.

The major effort, of course, has been in support of the annual Beltsville symposia. This was noted recently by Dr. Essex E. Finney, Jr., Director of Beltsville Area, who commented on FAR-B's "leadership role in the sponsorship and organization of the Annual Symposia Series on Agricultural Research" and the fact that during these six years "The Treasurer of FAR-B has collected and managed more than \$100,000 required to support the Beltsville symposia". Dr. Finney explained how FAR-B provides advice and counsel in the planning of each symposium, handles registration fees and banquet and reception receipts, and disburses the funds collected for these purposes and for other symposia expenses. In addition, as Dr. George Irving, long-time FAR-B Board Member notes, the "handling of travel and/or subsistence costs has enabled selected students to attend the symposia and has made it possible for foreign research experts to present papers and participate in discussions, thus assuring the comprehensiveness and timeliness of the symposia". Also, Dr. Irving speaks of the practice adopted by FAR-B (and directed by him) "of regularly soliciting contributions from private companies and organizations that have particular interest in that symposium's content. The responses have varied but have generally been encouraging and have provided resources that make support of the symposia all the more effective". The total collected by this effort over the five years beginning in 1987 is about \$13,000.

And there's still another way FAR-B participates in each symposium, and this is by leadership, management, and expertise. Dr. Russell Steere, in his role as FAR-B's first President, advanced the idea that our organization could "honor a person or persons who have worked at Beltsville in an area connected with the current symposium by presentation of the FAR-B Distinguished Scientist Award at the symposium banquet". So the Board of Directors has, for the past five years, designated a committee to search out the proper recipient(s) for the Award. FAR-B covers the costs of the plaques and related expenses from its own funds. (It has amounted to under \$500 during the past five years.) As Dr. Finney notes, the Award "recognizes scientists who have made outstanding contributions to agricultural sciences". Those so honored include Dr. Mary Shaw-Shorb in 1987 for her work on the discovery of vitamin B-12 used to treat pernicious anemia; Dr. Edward W. Baker and Dr. John G. Moseman in 1988 - Dr. Baker for

his work on the biotic diversity of mites, and Dr. Moseman for his research on host-parasite interactions and plant germplasm improvement; Dr. Edward Hacszylo and Dr. Alan W. Taylor in 1989 - Dr. Hacszylo for his research in mycorrhizae and other soil microbes for the advancement of forest tree productivity, and Dr. Taylor for his work in the effective and safe management of agricultural chemicals in the environment; Dr. Archibald B. Park in 1990 for his contributions to the development of the world's first earth sensing multispectral satellite, now known as Landsat; and Dr. Vivian K. Toole in 1991 for her pioneering research on mechanisms that regulate seed germination and development.

Which brings this report to the matter of FAR-B's own funds and their use. Since March 1986, membership dues and interest have added up to more than \$19,000. In addition, contributions have been made to FAR-B by ARS scientists who, as Federal employees, are not permitted to accept honoraria and royalties and who, therefore, request that FAR-B receive the monies. The sum from this source has reached nearly \$2,100. FAR-B's account is thus modest but useful. Operating expenses such as printing costs, including the cost of the brochure that explains FAR-B, the cost of postage (includes mailing the Newsletter), office supplies, P.O. Box rent, etc., have reached about \$3,400. Our total resources, therefore, have enabled FAR-B to support BARC through the funding of a variety of special projects.

One of these has been the funding of summer apprentices for the past two years. In 1990, at the request of the Director of the National Visitors Center, FAR-B funded the employment of a high school honors student to work as a public affairs apprentice at the Visitors Center. The young lady in this assignment is now a pre-medical student in college. Again, in the summer of 1991, we learned of the need for a summer apprentice in the office producing the magazine AGRICULTURAL RESEARCH, and we were able to provide the funding. In both cases, FAR-B funds were transferred to ARS and the Students were employed on a Federal appointment. The young lady employed in 1991, is now a part-time aide in the Plant Physiology Laboratory at Beltsville and pursuing education in plant genetics at the University of Maryland.

Another is the provision by FAR-B of amenities at special events at Beltsville. Dr. Finney explains one part of it as follows: "FAR-B provides financial support for receptions and luncheons for important visitors and foreign guests who come to Beltsville". Another part includes such events as the dedication of the newly-renovated Building 006; luncheons at the Visitors Center on occasions such as Earth Day and Take-Pride in America events, and receptions for such events as the traveling exhibit "Seeds of Change" described earlier in this Newsletter, and the Livestock Painting Exhibit held at the National Agricultural Library in September and October and sponsored by the American

Minor Breeds Conservancy.

Finally, there's the FAR-B Newsletter. It started almost as soon as FAR-B was officially organized with the aim of reporting to members on what FAR-B is doing, to try to accomplish its objectives - the dissemination of information regarding the achievements and resources of the Beltsville Center; taking part in organizing and supporting the annual symposia series; obtaining funds to help renew buildings and equipment at Beltsville; assisting in developing programs of interest to the many present and potential visitors to the Visitors Center; and encouraging research excellence at Beltsville. Over the six years of FAR-B's existence, it has tried to report on the progress FAR-B has made in achieving these aims. There has, however, been one major change.....copies are now sent routinely to all local, State, and Federal legislative people - hopefully a concerned audience. As Dr. Irving notes "by means of the Newsletter and the personal efforts of members, FAR-B has nurtured, by various means, renewed interest in Beltsville by members of the State Legislature and the Congress, thereby furthering the advancement of ARS' Renaissance '93 program for refurbishing and re-equipping facilities, many of which are more than half a century old. It has also helped to bring information concerning the accomplishments and needs of the Center to the attention of the learned societies and the public, as well as to the Federal and State legislative bodies". Indeed, officers of FAR-B have in the past visited with political figures to discuss the need to preserve land at the Center, and have been present to greet and visit such people as the Board of Directors for the Baltimore/Washington Corridor Chamber, the staff of Senator Barbara Mikulski's office, and Assistant and now-Secretary of Agriculture for Maryland, Dr. Robert Walker. Thus, Dr. Finney notes that as a result of the Newsletter and the personal efforts of its members "FAR-B plays an important role in helping to keep the public informed about the Center and has become a vital and essential partner in the ARS programs at Beltsville".

So - please remember.....

FAR-B's ability to assist BARC is due to the support of its members, the dues that are paid, and the personal efforts members make. You've made it happen! Find some others like you to join our ranks.

HONORS AND AWARDS

Three research scientists in the Livestock and Poultry Sciences Institute have been honored for their significant scientific achievements. Dale R. Waldo recently received the Pioneer Hi-Bred Forage Award from the American Dairy Science Association for his outstanding research contributions in forage production, processing, storage and utilization.

Gerald B. Huntington received the American Feed Industry Association Award for the development of innovative new techniques for studying nutrient metabolism changes in the gut, liver, and other tissues of growing and lactating cattle.

Lawrence A. Johnson was honored by his colleagues with the Animal Physiology and Endocrinology Award.

TRAVELING EXHIBIT, "SEEDS OF CHANGE" OPENS AT NAL

"Seeds of Change", a traveling exhibit exploring Christopher Columbus' legacy to North America, including North American agriculture, began a three-year tour of the United States at the National Agricultural Library (NAL) in Beltsville, Maryland, December 4-21. Developed by the Smithsonian Traveling Exhibition Service (SITES) and the American Library Association (ALA), the exhibit commemorates 500 years of cultural and biological exchanges since Columbus' voyages to the New World. It demonstrates how the transfer of five "seeds" - sugar, corn, the potato, disease, and the horse - has affected life in both the Old and New Worlds since 1492, altering forever the flora and fauna, changing the ethnic composition of countries in every corner of the world and transforming the diets and health of people everywhere.

The opening of the exhibit at NAL was arranged in cooperation with the National Visitors Center of USDA's Agricultural Research Service (ARS). The American Library Association and the Smithsonian arranged for 60 librarians from across the country to travel to NAL on December 9 for a workshop to learn to assemble the exhibit and display their collections in conjunction with it. A reception in honor of the exhibit and workshop held at NAL at the conclusion of the workshop was sponsored by the Friends of Agricultural Research - Beltsville, Inc. (FAR-B). Thanks to FAR-B, the librarians were impressed by both our research facilities and hospitality.

JUDITH HO

Special Collections, NAL

BELTSVILLE RESEARCH, A CONTINUING STORY

By growing new apple trees in 16-ounce jars- 40 trees to a jar- researchers have found a way to trim the rising costs of orchards. Replacement apple trees grown by this tissue culture technique could cost growers under \$2 each compared to about \$5 for a tree grafted onto a rootstock. Tissue cultured trees (started from cells) grow on their own roots unlike other apple trees that must be grafted. Time from lab jar to the field is 4 or 5 months compared to about 3 years in a conventional nursery. ARS scientists are now working to dwarf these tissue cultured trees. From 600 to 1,000 dwarf trees could be planted on an acre of land that would sustain only about 150 regular size apple trees. Research is directed to identifying and possible transferring the genetic trait that controls dwarfing. ARS scientists are also

studying growth regulators as a way to control dwarfing.

Fruit Laboratory
George L. Steffens

Even a balanced diet doesn't provide enough chromium--the essential trace element that helps regulate blood sugar. Analyses of institutional diets prepared by nutritionists and those freely chosen by study volunteers show that neither contained the minimum suggested intake. The average content of 22 balanced diets prepared at the Beltsville Human Nutrition Research Center was 13.4 micrograms (mcg) per 1,000 calories; it was 15 mcg/1,000 calories for diets study volunteers prepared at home. A person would have to eat between 3,500 and 4,000 calories per day to get the minimum suggested intake of chromium--50 mcg. But the 11 women in one study actually consumed an average 2,273 calories per day, the 8 men 2,950. These levels are typical for Beltsville center studies. Breakfast cereals made with whole bran and those fortified with extra vitamins and minerals, including instant oatmeal, provide 10 to 30 mcg of chromium per serving. To get the maximum suggested intake--200 mcg--people would need a chromium supplement.

Carbohydrate Nutrition Lab
Richard A. Anderson

When wandering gypsy moths try to set up housekeeping in an uninfested area, federal and state agents will have more ammunition--in the form of sterile males--to squelch the intrusion. ARS researchers found that by immersing gypsy moth eggs in the chemical KK-42 they could break diapause--the insect version of hibernation, after only 6 to 8 weeks of chilling instead of the normal 5 to 6 months. That would allow mass rearing facilities to produce up to three times more sterile males than currently possible. By timing the treatment just right, the sterile eggs will hatch just when the fertile eggs do, and they will emerge all at once instead of sporadically. More sterile moths mean more fruitless matings. KK-42 was developed in Japan as an insecticide and later found to break diapause of wild silkworm eggs. But ARS researchers found that it also can prevent gypsy moth eggs from going into diapause altogether.

Insect Neurobiology and Hormone Lab
Robert A. Bell



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)

March 1992

ANNUAL MEETING MARCH 10
2 PM VISITOR CENTER
REFRESHMENTS FOLLOWING

PRESIDENT'S REPORT

I urge you to attend the 7th Annual Meeting of FAR-B on March 10 to participate in the election of Board members as well as review and advise about our affairs. The Board's nominating committee (Bill Bailey, Chairman) has proposed Patricia Jackson to fill the expiring term of Jane Wall who was acutely dedicated to FAR-B affairs during her two 3-year terms as Newsletter editor, and one as Vice-President of the Board. Mrs. Pat Jackson is a recently retired Research Chemist of the Plant Stress Laboratory, Plant Physiology Institute, Beltsville. She has agreed to serve if elected.

At the meeting, BARC Director, Dr. Essex E. Finney, Jr., will be the guest speaker and advise us about pertinent prospects, programs, progress, and events at Beltsville.

BARC Poster Day 1992 will be held in the newly-renovated Building 003 on March 10, from 9:00 a.m. to 4:00 p.m. Propitiously, this year's annual Poster Day coincides with our annual meeting which means that you will have convenient opportunity to learn about the research of new BARC scientists in the morning and early afternoon in Building 003, before our 2:00 p.m. annual meeting at the Visitor Center. This display of research results fosters communication among scientists at BARC. All Post Doctoral Research Scientists and new scientists with less than 3 years at BARC are expected to participate. About 85 scientists will use this method to demonstrate their research.

Note that this issue of your newsletter contains late information about the imminent BARC Symposium XVII - Agricultural Water Quality Priorities - which will take place at Beltsville during May 4-8, 1992.

Please come to your Annual Meeting so that your Board can meet with each of you again.

ALBERT A. PIRINGER
President

BELTSVILLE SYMPOSIUM XVII

Plans are complete for the 1992 Beltsville Symposium XVII, "Agricultural Water Quality Priorities: A Team Approach for Conserving Natural Resources". Typically, environmental symposia emphasize either surface or groundwater quality. This innovative program features a number of leading scientists from both categories, who will discuss national perspectives, examine state-of-the-art research and propose future directions.

The unique "team approach" to evaluating agricultural water quality priorities reflects the broad range of participating organizations: Environmental Protection Agency, U. S. Geological Survey, and ARS are joined by numerous research universities in an excess of 100 presentations.

The symposium agenda consists of five oral sessions, each with a minimum of three internationally recognized presenters. Topics cover the spectrum from economics of surface water quality to remote sensing applications and stochastic modeling of solutes in soil. Additionally, over eighty poster presentations from the major water quality research institutions are divided between two poster sessions.

On Wednesday evening, there will be a banquet and award ceremony. We are privileged to have Dr. P. C. Kearney as our after dinner speaker. Dr. Kearney, ARS's 1986 Distinguished Scientist of the Year, will talk about what the future holds in regard to water quality and will outline future directions.

The co-chairman of the Symposium Committee are Timothy Gish (Hydrology Laboratory) and Ali Sadeghi (Pesticide Degradation Laboratory). The Committee also includes Jerry Ritchie, Walter Rawls (Hydrology Laboratory), Charles Helling (Weed Science Laboratory), and Adel Shirmohammadi (Agricultural Engineering Department, University of Maryland).

As you know, FAR-B is the major sponsor of the Beltsville Symposium. Due to their generous support, we are able to offer a reduced fee to retired FAR-B members:

Retired FAR-B Members fee	\$25.00
Additional Mixer tickets	\$10.00
Wednesday Night Banquet	\$25.00

This fee includes an evening mixer on Monday night, attendance at the symposium, and (eventually !) a copy of the proceedings published in the Journal of Environmental Quality.

We hope that many FAR-B members and guests will join us in this extraordinary opportunity.

TIMOTHY J. GISH
ALI SADEGHI
Symposium XVII Co-chairmen

DIRECTOR'S COMMENTS

Orville Levander, Research Chemist at the Beltsville Human Nutrition Research Center, was honored on January 29 as an Outstanding ARS Senior Research Scientist. ARS Administrator R. Dean Plowman lauded Dr. Lavender's pioneering research on the role of selenium and vitamin E in human nutrition and their relationship in maintaining the health and well being of the American public. Dr. Levander came to Beltsville in 1969, and received the prestigious Osborne and Mendel Award from the American Institute of Nutrition in 1986.

In 1993, the U.S. Department of Agriculture will celebrate 100 years of research in human nutrition. Walter Mertz, Director of the Beltsville Human Nutrition Research Center, and Jackie Dupont of The ARS National Program Staff, are planning a series of events to celebrate this special occasion.

President Bush's FY 1993 Budget proposes to raise the funding for ARS from \$660 million to \$686 million next year. Increased funding is provided for human nutrition research, new uses for agricultural products, research on biomass fuels, improved pest management practices, and the preservation of plant germplasm. An increase of \$27 million provided for construction of buildings and facilities includes \$11.3 million to continue the modernization of ARS facilities at the Beltsville Agricultural Research Center (BARC).

On April 24, 1992, a special ceremony will be held in the Auditorium of Building 003 to celebrate the progress of the BARC Modernization Program. Building 003 and 007 will be reoccupied this year. The new Small Animal Building for the Human Nutrition Research Center is almost complete. And the design of the new Plant Science Building is about 35 percent complete. Join us on the morning of Friday, April 24, to share in this special program. An open house will be held at the Center on Saturday, April 25, 1992, to give employees, their families and the local community an opportunity to learn more about BARC'S research programs.

Finally, you may be interested to learn that a former BARC scientist, H. Russell Cross, has been selected to be the new Administrator of the Food Safety and Inspection Service in USDA. Secretary Madigan made this announcement on February 10. Dr. Cross was a research scientist in the Meat Science Research Laboratory at Beltsville from 1973-80 and then went to the ARS Meat Animal Research Center in Nebraska. After leaving ARS in 1983, he went to Texas A&M University, where he became head of the Department of Animal Science.

I look forward to seeing as many of you as possible at the Annual Meeting on March 10, 1992, at the Log Lodge.

ESSEX E. FINNEY, JR.
Director, BA

ANNUAL DUES TIME

April 1, 1992, marks the start of our seventh membership year. We are grateful for all the support our members have given and continue to give. The bulk of our membership is made up of our original charter members, but we are pleased that we have been able to attract many new members over the years, including a number of industry supporters. We are also pleased that we have been able to keep our membership dues at the levels set when FAR-B was first organized; that is, Sustaining Members - \$500.00 and over, Patrons - \$100.00, Personal Members - \$20.00, and Associate Members (Current USDA employees) - \$10.00

Some of you have already sent in dues for the upcoming membership year and we appreciate your promptness. To avoid extra work on the part of our Secretary - and to save postage - we hope you will submit your dues payment from this general reminder in the Newsletter. However, we will be mailing individual reminders around April 1 to those members who do not get around to doing so. Your canceled check will serve as your receipt. Thanks again for your continued support.

FRANK LONGEN
Treasurer

VISITOR CENTER

As a FAR-B member, if you have not seen the new paving and landscaping at the ARS National Visitor Center, you are in for a treat. The contractors, Hill and Jackson, Inc., did a superb job, including certain touches--such as granite curbing and pebble-aggregate side walks--to accent the Log Lodge theme.

In December, at the Beltsville workshop for 100 librarians from major libraries nationwide, only seven had previously heard of the Agricultural Research Service. This "lowlight" was provided for talk at the workshop by Steve Berberich, Head of the ARS National Visitor Center, NVC. The workshop trained librarians to build school and community programs around a portable version of the Smithsonian Institution's "Seeds of Change" exposition commemorating 500 years of change since Columbus' voyages. Steve gave the Librarians USDA information sources on subjects raised in "Seeds"--a range of crops, livestock, environmental science, history, and technology

Earlier in the year, the NVC arranged for the workshop and a 3-week premier of the portable "Seeds" exhibit at the National Agricultural Library at Beltsville. We also provided addresses and telephone numbers of major ARS locations (100 or more employees) for the librarians to use as sources for speakers and special expertise.

Meanwhile, the highlight of the Seeds of Change meetings at Beltsville was surely the reception that was sponsored by FAR-B.

Martha C. Sewell, Project Director for the Smithsonian, as well as several librarians from across the country, have written to us to thank FAR-B for their generosity.

Science teacher Ronald Zehle of Lamberton School in Philadelphia became our first amateur science news editor. He was first to use "What's the News--in Food and Farm Sciences." The computer program holds about 1,200 ARS news stories. It instructs users to "create your own newsletter on any topic studied by ARS." During his advance trip to Beltsville prior to his students' bus trip, Mr. Zehle captured about four pages of news briefs on tomato research. His younger students--Lamberton has all 12 grade levels--helped NASA last year test tomato seeds from space. Incidentally, Lamberton is a public school that draws students of 30 different nationalities, in the multi-cultural town of Everbrook Park.

Dr. Paul S. Cohen and his wife, Brenda, visited and toured Beltsville. They are educational consultants, based at Trenton State College in N.J. The Cohens are writing a book "In Search of Excellence", a sort of travel guide to science learning sites for adults.

Here are some Visitor Center highlights of 1991:

Foreigners accounted for 11 percent of our visitors. Schools accounted for 54 percent. The remaining 35 percent were from business and science professions.

Many visitors are science, business, and education leaders, who in turn, share ideas found here with many others. Our total head counts may be deceiving. For the record, however, we had just over in-person 20,000 visitors in 1991 (up from 16,000 in 1990). We fielded some 6,600 significant telephone inquiries, and responded to perhaps four mail requests per week. The only obvious head count change was 15 percent more students in 1991 than in 1990.

New cooperators included both the Smithsonian Institution's National Museum of Natural History and its Festival of American Folklife, research managers of the National Security Administration, the American Society of Agricultural Consultants, Carnegie Science Center in Pittsburgh, and the International Visitor Center in Baltimore.

VIP's included U.S. Congresswoman Louise Slaughter, Senator Barbara Mikulski's staff (twice), the Maryland State Agricultural Commission, senior staff Analyst from the U.S. State Department's Foreign Service Institute, and two different groups of Agriculture Secretary Edward Madigan's senior staff. Mrs. Madigan accompanied one group.

Foreign VIP's were too numerous to highlight. Visitors came from 72 different nations. The U.S. Information Agency provided a French-translation tape and script of our orientation program.

STEVE BERBERICH, Director
National Visitor Center

DEDICATION OF BUILDING 003 AND 007 AND BARC OPEN HOUSE

BARC will mark a major milestone in its renovation program on April 24 with the dedication of newly redone buildings 003 and 007.

FAR-B members as well as BARC employees and the public are invited to the dedication ceremonies, which will be held in the auditorium of Building 003 from 8:30 a.m. to noon. From 8:30 to 10:30, there will be a symposium followed by a formal ribbon cutting.

Since Building 007 will be housing Natural Resources Institute Laboratories and the dedication falls in the same week as Earth Day, the theme for the symposium is Agriculture and the Environment. Speakers for the symposium include James Corbin, Executive Assistant Director of the Missouri Botanical Garden; Joel Fisher, environmental Advisor to the U.S. Commissioners of the International Joint Commission and a member of the faculty of Cooper Union University; and Joseph Mihursky, Director of the Chesapeake Research Consortium and a member of the University of Maryland faculty.

Following the symposium, local and national dignitaries have been invited to formally dedicate the building. After the ceremony, the building will be open to tour.

On Saturday, April 25, BARC will host an open house. Exhibits, farm animals and machinery will be on display, giving visitors an idea of the diversity of research taking place in BARC laboratories.

KIM KAPLAN
Public Affairs Specialist



June 1992

FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)
P.O. Box 1061, Beltsville, MD 20704-1061

PRESIDENT'S REPORT

The Annual Meeting of the Friends of Agricultural Research at Beltsville (FAR-B) was convened at 2:00 p.m. on March 10, 1992, in the Theater Room of the National Visitors Center (Log Lodge). Twenty one, (17%), of the members participated.

Before the start of business, a moment of silence memorialized the previous year's departed members: Paul E. James; Orville A. Vogel; John G. Shaw; and Russell L. Steere.

The minutes of the 1991 Annual Meeting were read and approved. The Treasurer, Frank Longen, provided detailed income and expenses for inclusion in the minutes and reported the year-end status of the two bank accounts - - the Regular Account (\$13,433) and the Conference and Symposia Account (\$21,472).

Steve Berberich, Director of the Visitors Center, briefly reported about the activities and accomplishments of that agricultural-information Mecca. He appealed for volunteer receptionists and guides to help his staff welcome the more than 20,000 annual visitors.

Beltsville Area Director, Dr. Essex E. Finney, Jr. was the guest speaker. He expressed appreciation for the continuing support FAR-B gives to ARS research. He advised about pertinent programs, progress, and prospects as well as happenings at BARC: these included imminent events; significant personnel changes in the Department, ARS, and BARC; and fiscal and facility resource management. More details are given in the minutes of the Annual Meeting and are available from Board Secretary, Virginia Hupfer.

Dr. Finney introduced Beltsville symposiarchs Dr. Timothy Gish and Dr. Barbara Leonhardt. Dr. Gish is Co-Chairperson of May 1992 Beltsville Symposium XVII, "Agricultural Water Quality Priorities, A Team Approach to Conserving Natural Resources"; Dr. Leonhardt is Co-Chairperson of the planned 1993 Beltsville Symposium XVIII, "Pest Management: Biologically Based Technologies".

The FAR-B members present elected, by acclamation, retired research chemist, Mrs. Pat Jackson to be the new member of the Board of Directors to succeed departing Jane Wall. Charter member, Jane Wall, left the Board after six years of pioneering service, three of them as Vice President. She was fervently devoted to the ARS "cause" and was editor of the FAR-B

newsletter. Jane will continue to significantly monitor the content and quality of the Newsletter.

ALBERT A. PIRINGER
President

BELTSVILLE SYMPOSIUM XVII

The Symposium entitled, "Agricultural Water quality Priorities, a Team Approach to Conserving Natural Resources" was held May 4-8 in the newly refurbished BARC-W auditorium. National interest in natural resources, and the high research priority assigned to water quality priority made this a critical symposium. This Symposium was unique as it brought together leading scientists from all major disciplines working in the area of water quality.

The Symposium was well attended with approximately 170 participants. Due to the scope of the Symposium, all participants were by invitation only. The program consisted of twenty-seven oral presentations and approximately 80 invited poster presentations. Symposium presenters were invited as a result of their international impact on water quality research. The new facilities, program, and scientific content were all evaluated as excellent by the participants.

The banquet held May 6 was attended by over 160 individuals. The FAR-B Distinguished Scientist Award was presented to Dr. Jesse Lunin by Dr. George Irving, in recognition of his impact on USDA-ARS water quality research. Dr. Lunin received his PhD in Soil Science from Cornell University in 1949. As a soil scientist, he gained international recognition for his work in soil chemistry and soil-plant relationships. In 1972, he joined the National Program Staff, where he served for over 10 years. While on the National Program Staff he was responsible for the development and coordination of ARS research in the area of water and environmental quality. It was under his leadership the ARS water quality program gained national recognition. Dr. P. C. Kearney, a noted USDA-ARS scientist gave the after dinner speech on his impression of what the future holds with respect to pesticide use and water quality.

Preparation of the Symposium proceeding, to be published in the *Journal of Environmental Quality*, is presently in progress. Anticipated publication date is the spring issue of 1993.

The Symposium committee also wants to express gratitude to FAR-B which assisted with the Symposium, especially Virginia L. Hupfer, Symposium Secretary, for her many contributions to help make Symposium XVII successful and productive.

TIMOTHY J. GISH
ALI SADEGHI
Co-Chairs, Symposium XVII

BELTSVILLE SYMPOSIUM XVIII

Planning for the 1993 Beltsville Symposium, "Pest Management: Biologically Based Technologies", is well underway. The Symposium will be held May 2-6, 1993 in the auditorium of Building 003, BARC-West. The registration and a reception on Sunday and the poster session on Monday evening will be held at the Holiday Inn in Beltsville. The banquet will take place on Wednesday evening at the Aquarium in the Baltimore Inner Harbor area.

The Symposium will begin with four plenary papers; speakers are confirmed for these presentations. There will be three sessions on "Biocontrol Agents for Pest Suppression" and one session each for "Natural Compounds in Pest Management", "Genetic Manipulation of Biocontrol Agents", and "Implementation: Needs, Issues, Challenges". Speakers for the individual papers within each session have been identified.

As in the past, FAR-B will contact private and commercial organizations to request assistance for the support of travel for speakers and students. Members' suggestions for such contacts for support are welcome. Symposium Co-Chairmen are Barbara A. Leonhardt, Insect Chemical Ecology Laboratory, and James L. Vaughn, Insect Biocontrol Laboratory, Plant Sciences Institute, USDA-ARS, Building 011A, Beltsville Agricultural Research Center, Beltsville, MD 20705, telephone 301/504-6394, FAX 301-504-6580.

BARBARA A. LEONHARDT

JAMES L. VAUGHN

Co-Chairs, Symposium XVIII

DIRECTOR'S COMMENTS

The Agriculture and the Environment Symposium and the dedication of modernized Buildings 003 and 007 on April 24 followed by the BARC Open House on April 25 were very well attended and considered a major success. The over 100 special guests at the dedication included a group of senior high school students from Eleanor Roosevelt and High Point High Schools. We presented awards to the four students who wrote the best essays on environmental topics. The BARC Agriculture and the Environment Award was presented to Dr. Jerry Ritchie of the Hydrology Laboratory in recognition of his significant research achievements that have fostered conservation of our water and soils nationwide. The Administrator of ARS, Dr. R. D. Plowman, introduced U.S. Senator Paul Sarbanes, Congressman Steny Hoyer's Legislative Director, John Berry, U.S. Senator Barbara Mikulski's Legislative Assistant, George Levanthal, Maryland State Senator Arthur Dorman, Maryland State Delegate, Pauline Menes, and Parris Glendening's Special Assistant Don Spicer. Dr. Harry Mussman, Acting Assistant Secretary for Science and Education, brought greetings from the Secretary's Office. Senator Sarbanes highlighted past and present support for BARC's program by the

Maryland Delegation. A ribbon cutting in front of the Administration Building was followed by a FAR-B-hosted luncheon for about 70 distinguished guests including the Joint Council on Food and Agriculture on the 14th floor of the National Agricultural Library. Dr. George Irving was toastmaster at the luncheon. Afterward, Senator Sarbanes toured the ARS National Visitors Center and the Beltsville Human Nutrition Research Center. The substantial support of FAR-B for the event is gratefully acknowledged.

On May 4 to 8, Beltsville Symposium XVII, cosponsored by FAR-B, featured "Agricultural Water Quality Priorities, A Team Approach to Conserving Natural Resources." About 170 scientists from throughout the nation and several foreign countries attended the presentation of 31 formal talks and about 80 posters. At the Symposium Banquet, Dr. Irving presented the FAR-B Award to Dr. Jesse Lunin for his outstanding contributions to soils research. Dr. Philip Kearney, Deputy Area Director of the Natural Resources Institute at BARC, was the Banquet Speaker.

Dr. Harold Hawk will receive the Distinguished Service Award at the USDA Honor Awards ceremony in Washington, D.C., on June 10. He will be recognized for his leadership of the research laboratory that produced the first transgenic farm animals and the first sexed offspring from separated X and Y sperm. Three BARC scientists will be included in Group Awards (Dr. John Meisinger, Distinguished Service for the Groundwater Nitrate Modeling Group; Dr. Hachiro Shimanuki and Dr. Walter Sheppard, Superior Service for the Africanized Honey-Bee Technical Working Group).

On May 11, Dr. Plowman announced the appointment of Dr. Essex E. Finney, Jr., as the new Associate Administrator of ARS. Dr. Finney assumed his new position in Washington on May 14. He replaces Dr. Mary Carter who will now serve as Special Assistant to the Assistant Secretary for Science and Education. Dr. Finney joined ARS as a research agricultural engineer in the Instrumentation Research Laboratory at BARC in 1965. In 1972, he became Chairman of the Agricultural Marketing Research Institute at Beltsville, and in 1977, he was appointed Assistant Director of BARC. Then Dr. Finney served as a Senior Policy Analyst in the Office of the Science Advisor to the President in 1980-81. After serving as Associate Director of BARC from 1983 to 1987, he became Associate Director of the North Atlantic Area before returning as Beltsville Area Director in August 1989. We will miss Dr. Finney's counsel and fine leadership, but we hope to see him often at BARC as he pursues his new ARS-wide responsibilities.

The new Director of the Beltsville Area remains to be decided by Dr. Plowman. Meanwhile, I look forward to working closely with

FAR-B as we continue our partnership in fostering the excellence of the Beltsville Area.

GORDON C. MARTEN
Acting Director, BA

MEMBERSHIP DUES

If you read the April issue of AGRICULTURAL RESEARCH magazine, you perhaps noted the comments of Terrie Weaver on the inside cover page. Terrie worked as a "Summer Staffer" last year in the office producing the magazine. We are pleased that her employment during the summer months was made possible (at least in part) by a grant from FAR-B to ARS. This is one example of how the dues of members are put to work. This summer FAR-B will again allocate funds for this purpose. Efforts such as this, need your continued support. Most of our members have renewed their membership for the current year; however, a number have not done so. If you have not as yet sent in your 1992 dues (through March 31, 1993), please do so as soon as possible. Payments should be mailed to FAR-B, Inc., P.O. Box 1061, Beltsville, MD 20704-1061.

FRANK LONGEN
Treasurer

FAR-B MEMBERS

THE BOARD NEEDS YOUR HELP

We understand that you were pleased with the report you received in a recent newsletter about how the FAR-B Board has been using your contributions to support the Beltsville International Symposia, make known the achievements and resources of the Beltsville Center, help renew buildings and equipment at Beltsville, support the Beltsville Visitors Center, and encourage research excellence at Beltsville. But as you know, there's still a long way to go, and fresh ideas would help a lot; one does get stuck in a rut, and mistakes get overlooked.

We need to grow. We need to do more. Please give any comments you have, good or bad, to the FAR-B Board and tell the Board what you think might be done. Please write to FAR-B at P.O. Box 1061, Beltsville, MD 20704-1061, or call Virginia Hupfer, FAR-B secretary, at (301) 504-8112.

RUSSELL L. STEERE

It is with sincere regret that we inform you of the death of Dr. Russell L. Steere. In his passing, FAR-B has lost one of its charter members and its first President, serving in this post from 1986 to 1989. Dr. Steere took great interest in FAR-B and worked diligently in its efforts to support the Beltsville Agricultural Research Center. He passed away on February 28 at the age of 74.

In his long and distinguished career with the USDA's Agricultural Research Service, Dr. Steere was the founder and Chief of the Plant Virology Pioneering Research Laboratory at Beltsville. He joined the USDA and helped found the lab in 1959 and served as its Chief until retiring in 1984.

An authority in botany, virology and biophysics, much of his research concerned the purification of viruses and sub-cellular materials and new methods for better examining such substances with electron microscopes. He was a leader in developing the freeze-fracture technique of obtaining three-dimensional pictures of viruses and plant cells. During the years he was its director, work at the lab led to discoveries in virology that advanced research programs dealing with malarial parasites and the AIDS virus.

Dr. Steere was a past president of the Electron Microscopy Society of America. His awards included an achievement certificate from Walter Reed Army Medical Center, the Agriculture Department's Distinguished Service and Superior Service Awards and two awards from the American Phytopathological Society. He also helped supervise science clubs for area high school students. In 1991, Colorado State University named a science laboratory in his honor.

Dr. Steere was a native of Michigan. He served with the Army Air Corps in the Pacific during World War II. A 1941 graduate of the University of Michigan, he received a doctorate in Botany there in 1950. Before coming to Washington, he spent a year at the Rockefeller Institute for Medical Research in New York and then joined the University of California at Berkeley, where he did research work in the virology laboratory from 1951 to 1959.

In addition to his work with FAR-B during his retirement, his activities also included work toward building a solar-powered home.

VISITORS CENTER

Spring "marched" in, typically, with about 400 students. We conducted 42 official tours of ARS science, as represented at Beltsville, and greeted nearly 1,800 visitors from 25 different nations.

We set up a timely, yet regrettably temporary, display on the 1991 ARS Distinguished Scientist, Dr. John R. Gorman-- illustrating studies of immune deficiency diseases of animals, examples of the need for animals in research, and a personal tribute to the freshness and joys of science--50 years deep in a career. Thanks and congratulations again to our new friend, Research Leader of the Animal Diseases Research Laboratory,

Pullman Washington, Dr. John R. Gorman, for letting us share with the public, his work and positive outlook.

Distinguished Visitors, U.S. Science, Trade and Agriculture:

The dynamics of ARS--how we select, conduct and guide R & D--was the requested topic for 33 young professionals in the Leadership Development Program for the National Center for Food and Agriculture Policy. The Center is part of the non-profit environmental group, Resources for the Future, Washington, D.C.

These people made up an extremely diverse group with both public and private affiliations in business, education and science in 14 different states; it includes an engineer from Nicaragua and an agricultural trade policy administrator from Zimbabwe. All shared an interest, said their letter, "in understanding food and agricultural policy issues and the process by which policy is formed and implemented." The ARS visit was part of a long-day field trip that included the Maryland Wholesale Food Center, grain elevators in Baltimore and a luncheon with key food and farm journalists at Baltimore's World Trade Center.

The Director General of Finland's Agricultural Research center, Esko Poutianinen, and his wife, Lana, began their 9-week visit to key animal science sites with a visit here. Dr. and Mrs. Poutianinen are special guests of Robert R. Oltjen, Associate Deputy Administrator for Animal Sciences and Beltsville Area Director.

From the People's Republic of China, 44 agricultural commissioners took a half day tour of research.

Prior to a special tour, Duen-Gang Mou, Taiwanese Office of Science and Technology Advisors, Ministry of Economic Affairs, met with Ann Whitehead of the ARS Office of Cooperative Interactions and Yao-Chi Lu of the ARS Systems Research Laboratory at Beltsville.

Activities in Education:

The National Consortium for Specialized Secondary Schools of Mathematics, Science and Technology, meeting in the Washington metro area, sent 20 educators to the Visitors Center. Each is in charge of a program of gifted and talented science and math students in states as far away as Florida and California. Steve Berberich, prepared a talk on ARS role models for scientific careers. Three scientists were asked to prepare simple demonstrations that could possibly be simulated in science classrooms. Thomas Devine, Plant Molecular Biology Laboratory, demonstrated gene linkages of soybean traits. Freddi Hammerschlagg of the same laboratory demonstrated tissue culture

techniques. Phyllis Martin, Insect Biocontrol Laboratory, showed how to identify different strains of the pathogen, *Bacillus thuringiensis*.

In April, we hosted 49 groups and nearly 2,000 visitors. We had visitors from Australia, Bangladesh, Slovakia, Denmark, Egypt, Germany, Hungary, Indonesia, Ivory Coast, Japan, Mexico, Netherlands, Canada, Puerto Rico, Nigeria, Norway, South Africa, Spain, Sweden, Thailand, Turkey, Venezuela, Italy, India, United Kingdom, and Kiev, Ukraine.

Distinguished Visitors, U.S. Science, Trade and Agriculture:

U.S. Senator Paul Sarbanes, Md., several of his staff, and John Barry, senior staffer with U.S. Congressman Steny Hoyer, Md., visited the ARS National Visitors Center, on April 24. While joking that our photograph of pizza in the nutrition exhibit is a smart promotional ploy, the Senator did express genuine pleasure in educating students about food and farm sciences. The VIP group was given a highly complementary introduction to our staff and program by then Beltsville Area Director, Essex E. Finney, Jr.

BELTSVILLE RESEARCH, A CONTINUING STORY

Sprouting seeds at high greenhouse temperatures gives a fast test for a plant's ability to withstand drought. Such a test could be important should global warming and drought endanger crops in the future. ARS researchers tested 200 strains of peanuts in a three-year study. Over that time, the findings from field-grown peanuts validated the quick greenhouse tests of seeds for drought tolerance. Scientists first identified high-temperature germinating strains. Next, the seedlings were measured for the most root growth-compared to the weight of the seed-after the tiny roots and shoots were stripped off. Then 10 strains were put to the test in greenhouses and field plots for 3 years. Almost without exception, the most drought resistant strains were those with high ratios of root growth to seed weight.

Climate Stress Lab
Robert K. Howell

A new biosoap from an Australian relative of the tobacco plant kills young whiteflies by dissolving their waxy protective cuticle or body covering. A species of *Nicotiana* produces the detergent-like compound that causes the immature or nymphal stage of the whitefly to collapse. They have applied for a patent on four compounds from *Nicotiana*. Field testing of the extract, which easily mixes with water, is planned this year.

Horticultural Crops Quality Laboratory
George Buta



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)

(Cooperating with the Agricultural Research Service

at Beltsville, Maryland)

P.O. Box 1061, Beltsville, MD 20704-1061

October 1992

PRESIDENT'S REPORT

You were advised in the last FAR-B Newsletter (June 1992) that in mid-May the Beltsville Area Director Dr. Essex E. Finney, Jr. became the Associate Administrator of ARS and was relocated to Washington. Dr. Finney is now FAR-B's highest ranking associate member in ARS.

In July 1992 Dr. K. Darwin Murrell was named Director of the Beltsville Area. He came to the Beltsville Area after serving as the Director of the Midwest Area in Peoria, Illinois but is no stranger to Beltsville. He trained and worked as a microbiologist and parasitologist and joined ARS at Beltsville in 1978 as Laboratory Chief, Helminthic Disease Laboratory. He became a noted authority on foodborne parasites and diseases and was progressively promoted within ARS. Dr. Murrell has joined FAR-B and we welcome him as our newest associate member.

We wish to extend our deepest sympathy to Patricia Jackson, a member of our FAR-B Board of Directors, who's husband, Dudley, passed away recently. Dr. Dudley Jackson, who was a Professor of Hematology at Georgetown University School of Medicine, died suddenly of a heart attack.

ALBERT A. PIRINGER

President

Knipling and Bushland to Receive World Food Prize

The 1992 World Food Prize will be presented to Drs. Edward F. Knipling and Raymond C. Bushland, two renowned ARS entomologists who pioneered the development of biological approaches for the control of insect pests. John Ruan, Chairman of The World Food Prize Foundation, has stated, "This team of visionary scientists dedicated years of relentless scientific research and cooperative effort with U.S. and world organizations to improve the world's food supply and human health". Norman Borlaug, the Nobel Peace Prize Laureate, praised Knipling and Bushland for their "development of an ecologically compatible and sound method of eliminating insect parasites which has contributed to the preservation of a nutritious, stable food supply for the world."

Drs. Knipling and Bushland are both members of the ARS Science Hall

of Fame. They began their search for alternatives to chemical pesticides in the 1930's when both worked at the USDA Screwworm Laboratory in Menard, Texas. At that time, the screwworm was decimating livestock herds in the southwestern U.S. and in other parts of South America. Knipling and Bushland collaborated to successfully eradicate screwworm populations using sterilized male flies. The life cycle of the screwworm was disrupted when native female flies mated with sterile males, and their eggs failed to hatch. The sterile insect technique was used to eradicate the screwworm from the United States in the 1960's and 1970's, from Mexico, Guatemala and Belize in the 1980's, and halt a serious outbreak in Libya in 1991. Scientists believe that this technique will ultimately eliminate this vicious pest from all of the Americas, and thereby preserve an essential source of meat and milk for vast human populations. As the human population triples during the next century, the techniques developed by Knipling and Bushland will be effectively utilized to suppress a wide variety of pests that threaten to destroy the available food supply.

The 1992 Laureates will receive their \$200,000 cash award at a ceremony to be held in Des Moines, Iowa, on October 12 during World Food Week. A reception is being planned for these distinguished scientists at Beltsville. The public reception will be at 10:30 a.m. on Wednesday, October 14, 1992, in Building 003 (Administration Building) at the Beltsville Agricultural Research Center. The Charles Valentine Riley Memorial Foundation is assisting with the arrangements for the recognition activities at Beltsville on October 14. We hope that as many members of FAR-B as possible will attend, participate in this special occasion, and celebrate the achievements of these noble colleagues.

ESSEX E. FINNEY, JR.
Associate Administrator, ARS

BELTSVILLE SYMPOSIUM XVIII

Organization of the 1993 Beltsville Symposium, "Pest Management: Biologically Based Technologies", is complete. The Symposium will be held in the auditorium, Building 003, BARC-West, May 2-6, 1993. Registration will begin on Sunday evening, May 2, at the Holiday Inn (at the Beltway); the posters will be available for preliminary viewing at that time. Four Plenary speakers will open the technical program on Monday, May 3. The FAR-B award ceremony will take place prior to the first speaker. Six half-day sessions will follow: "Biocontrol Agents for Pest Suppression" on Monday afternoon as well as Tuesday morning and afternoon; "Natural Compounds for Pest Management" on Wednesday morning; "Genetic Manipulation of Biocontrol Agents" on Wednesday afternoon; and "Implementation: Needs, Issues, Challenges" on Thursday morning. A total of 46 podium speakers represent ARS (7 from Beltsville and 11 from 10 other locations), other government agencies (4), universities (12), industry (7), and foreign universities or public

sector organizations (5). The proceedings will be published by the American Chemical Society.

A combination poster session and mixer will be held on Monday evening at the Holiday Inn. About 20 invited posters and up to 80 submitted posters will be presented. Demonstrations of computer modeling are also being planned; these include: livestock IPM, chemical structure, gypsy moth management, and quantitation of metabolites. The banquet will be a special event on Wednesday evening at the National Aquarium at the Inner Harbor, Baltimore, MD. The dinner will be catered at the Aquarium with food stations located throughout the exhibits. Bus transportation from BARC will be included.

The Symposium Organizing Committee (B. Leonhardt, J. Vaughn, J. Menn, R. Lumsden, H. Hayes, R. Huettel, J. A. Anderson, and D. Chitwood) anticipate an attendance of about 300-400. The first announcement is being distributed and numerous requests for further information have been received. The final announcement will be ready in December. Professional societies are being contacted to place a meeting announcement in their publication. Solicitation of commercial firms for contributions is underway.

We hope that many FAR-B members and guests will join us at the Symposium. For information, please contact Virginia Hupfer at 301-504-6108.

BARBARA A. LEONHARDT
JAMES L. VAUGHN
Co-Chairs, Symposium XVIII

DIRECTOR'S COMMENTS

The Fiscal Year 1993 ARMPS process is nearing completion. The flat FY'93 budget, coupled with inflation, will result in about 5 percent less discretionary operating funds than in FY'92. The Area has developed a plan to adjust the program's priorities and the Area staff levels to protect high priority research. It is not anticipated that this belt-tightening will have significant impact on the Area this year. In spite of the flat budget for ARS, the Beltsville Area did receive an appropriation of \$13.5 million for its modernization program. This reflects the strong Departmental and Congressional support for the renaissance of Beltsville.

The selection process for the new Directors for the Beltsville Human Nutrition Research Center and the U.S. National Arboretum is nearing completion. It is anticipated that these positions will be filled prior to January 1993.

The Area has a new EEO Manager, Carolyn Moore. Ms. Moore worked previously for the Department's Office of Advocacy and Enterprise. Ms. Moore will place particular emphasis on student programs and on

building stronger linkages with regional 1890 institutions and HBCU's.

Finally, two Beltsville scientists have recently announced their retirements. They are Dr. George Steffans of the Fruit Laboratory, Plant Sciences Institute, and Dr. Dale Waldo of the Ruminant Nutrition Laboratory, Livestock and Poultry Sciences Institute. These two outstanding ARS scientists will be sorely missed, both for their contribution to the Agency's mission and because of their influence and support for their fellow scientists and support personnel. Please join us in wishing them both many satisfying and productive days ahead as they begin another phase in their careers.

K. DARWIN MURRELL
Director, BA

MOVING INTO BUILDING 007

On Monday, September 14, the Systems Research and Hydrology Laboratories moved back into their renovated facilities in Building 007. The Remote Sensing Research Laboratory plans to move back on October 19. These three NRI labs occupy space in the basement and first floor of 007, where little laboratory renovation was necessary. A major problem in moving back into the second and third floors has been the delivery of new laboratory furniture for the Environmental Chemistry Lab on the second floor and the Insect Chemical Ecology Lab on the third floor. The first shipment of new laboratory furniture arrived on Monday, September 21, and will take approximately a week to place in the appropriate labs. The contractor estimates it will take approximately 2 months to install the furniture and test the support systems. In addition, prior to reoccupancy of the 2nd and 3rd floors, modification of air flow systems for the chemical hoods must be made to reduce the noise levels. The remaining two laboratories, Environmental Chemistry and Insect Chemical Ecology Laboratories, will probably move into the renovated lab space the early part of the new year. When these moves are completed, Building 007 will house 95 NRI employees, of which 30 are SY's, and 24 PSI employees, of which 7 are SY's.

PHILIP C. KEARNEY
Deputy Area Director, NRI

VISITOR CENTER

After spending most of August 27 on a VIP tour of ARS work at Beltsville, Assistant Secretary of Agriculture Duane Acker shared four impressions with about 30 distinguished USDA guests including the heads of nine agencies. "We heard at the Visitor Center that we have a world class research organization. Yes, there is a lot of clear thinking by some 6,000 ARS scientists. Second, we heard that agriculture still is responsible for some 26 percent of the

nation's GNP. This means one of the highest potentials for improving our global competitiveness. Third, there were Plowman's comments on CRADA's (Cooperative Research and Development Agreements): there is great progress in moving technology out to users. And fourth, remember the linkages with other agencies than ARS.

The month of July included many distinguished guests from foreign countries:

From Europe, three Dutch members of the European Parliament.

The Deputy Minister of Agriculture of the Russian Federation, Anatoly Puponin, formerly of their acclaimed Timiryazev Agricultural Academy with acting Director Gordon Marten, International Research Administrator of the Office of International Cooperation and Development (OICD) Jim Butcher, and head of the ARS National Visitor Center (NVC) Steve Berberich.

OICD also sent 32 "independent farmers and farm managers" from Czechoslovakia for a tour of ARS animal science.

Ireland's Michael Walsh, a principal administrator on agriculture for the Commission of the European Communities (the EC), was sent to the NVC by the USDA Graduate School and the U.S. Information Agency.

The Counselor of Agricultural Affairs at the German Embassy, Juergen Heitmann, marked his first visit to Beltsville by accompanying a bus load of science students from the University of Erlangen-Nurnberg to the NVC.

On their way to "view dairy and agronomic practices in our closest climatic/crop equivalents to Latvia (Michigan and Wisconsin)," four leading agriculturists from Latvia spent an afternoon at Beltsville.

From Asia, Chen Chuangoun, the Deputy Director of the Science and Technology Commission of Zhejiang led a delegation of Chinese agricultural professors, managers and engineers sent to us through the China National Sparks Corporation.

The Embassy of the People's Republic of China, and the Institute of International Development and Education in Agriculture and Life Sciences, Inc., brought a delegation of scientists from their Office of Science and Technology.

The Head of Animal Pathology at the University of Ankara in Turkey, Professor Cemalettin Kokuuslu.

From Latin America, the Chairman of the Caribbean Farmers Development Company visited from Kingston, St. Vincent arranged through the Institute of International Education, Washington, D.C.

Trying to broaden his work in "the behavior of pesticides in tropical environments, Panamanian scientist Jaime Gonzalas visited the Research Leader of the ARS Environmental Chemistry Laboratory Robert Wright and Plant Physiologist Allan Isensee of the ARS Pesticide Degradation Laboratory after an orientation to ARS here.

A delegation of Jamaican officials visited. They were working on solutions to a common third world dilemma: boosting exports of non-traditional (non-colonial) crops such as yams, breadfruit and papaya.

From around the globe, the American Cyanamid Company brought 25 of their research managers from overseas experiment stations.

Research leaders from Nigeria, Malawi, Venezuela, Sri Lanka, Bangladesh, and Rwanda came with USDA Short Course on Management of Agriculture Research.

Also from the African continent, 24 Egyptian scientists who visited because of special interests in integrated pest management.

The National Future Farmers of American sent us 11 students of agricultural science from Germany.

Individual farmers also visited from Germany, Korea, and Chile.

We are planning to hold our second Volunteer Appreciation Day awards ceremony on November 13, 1992 at 3 p.m. Following will be a mixer with community leaders. FAR-B members are cordially welcomed to attend. Thank you.

STEVE BERBERICH, Director
National Visitor Center

BELTSVILLE RESEARCH, A CONTINUING STORY

A natural insecticide that comes from neem, a tropical mahogany tree, can give growers and home gardeners alternatives to synthetic insecticides like diazinon, malathion and carbaryl. ARS scientists studied the neem seed extract in the late seventies and identified an active chemical as azadirachtin. Tests showed the extract would control over 80 major insect pests by disrupting hormonal changes in the insect larva, causing death during molting. Neem is effective against greenhouse insects such as whiteflies as well as other pests like beetles, grasshoppers, aphids, weevils, fruit flies, gypsy moths and mosquitoes. The ARS studies helped pave the way for development of commercial products based on neem extract. Three commercial formulations--Azatin, BioNeem and Margosan-O--are registered for use on ornamentals and other non-food plants. Registration for use on food crops is underway. The extract's complicated molecule makes it difficult for these insects to develop resistance to it, unlike synthetic sprays. However,

it's not toxic to honey bees, other beneficial insects and earthworms and won't harm birds or humans. ARS scientists currently are looking at other neem-based products for use as a fungicide.

Florist and Nursery Crops Laboratory
Jim Locke

A streamlined analysis for cholesterol in mixed foods cuts 75 percent of the time and considerable cost off the method currently sanctioned by the Association of Official Analytical Chemists. The new method would be useful to food companies that are analyzing mixed foods, such as chili or meat loaf, to meet labeling requirements regarding cholesterol. Like the official AOAC method, it uses a chloroform-methanol-water solvent system to extract lipids (fat and cholesterol) from the mixed foods, but the remaining steps have been streamlined, updated or eliminated. The simplified method measures cholesterol with a gas chromatograph--standard equipment in most analytical labs. Other methods that don't require solvent extraction are more popular because chloroform can be toxic to workers and is costly to dispose. However, the solvent-extraction method is more versatile, because it allows scientists to measure total fat and assess the composition of fatty acids--polyunsaturated, monounsaturated and saturated--as well as measure cholesterol.

Nutrient Composition Laboratory
Human Nutrition Research Center
Raymond H. Thompson, Jr.

Chromium acts on the body's insulin-secreting cells, new findings show, as well as on the insulin molecule itself. Beta cells in the pancreas manufacture and store insulin until a rising blood sugar level signals them to release it. Now a study of rats fed either chromium-deficient or chromium-sufficient diets shows that the element enables the cells to respond quickly to the glucose signal. The pancreases of chromium-deficient rats secreted 40 to 50 percent less insulin than those of chromium-sufficient animals during the early stages of stimulation with glucose. Chromium helps normalize blood sugar levels, but few people get even 50 micrograms (mcg) of this essential trace element daily--the bottom of the suggested 50 to 200 mcg/day intake. It is known to make circulating insulin more efficient at getting blood glucose into body cells and metabolized. Apparently, it also helps the beta cells secrete enough insulin to handle the glucose from a meal.

Vitamin and Mineral Nutrition Laboratory
Human Nutrition Research Center
Richard A. Anderson and John S. Striffler

A money-saving "pollution solution" for excess fertilizer could come from a simple test of a leaf's protein and starch levels. Growers of soybeans and other legumes currently have to

make an educated guess on whether young crop plants need more nitrogen or ammonia fertilizer. But ARS tests indicate that checking the leaves' protein and carbohydrate (starch) levels can give a more scientifically based answer. The scientists found that these levels indicate how well nitrogen-fixing bacteria are working effectively--combining with roots to convert nitrogen to ammonia--more fertilizer isn't necessary. That, in turn, could help protect groundwater, lakes, rivers and streams against pollution by excess fertilizers. The scientists aim to develop a simple and inexpensive test that is as easy to use as soil-testing kits now on the market.

Climate Stress Laboratory
J. Michael Robinson

Cone-shaped pieces of plastic resembling badminton birdies are helping gardeners fight over 100 garden and shade tree pests this summer. Inside the cone--marketed as Rescue--is a sex scent, or pheromone, that attracts spined soldier bugs into an area so they will devour gypsy moth caterpillars, Mexican bean beetles, cabbage loopers, corn earworms, and other pests. One cone can attract 50 or more spined soldier bugs in one day, if it is put out one week before the bud-burst of the red maple tree from early March to mid-April. It is the first commercial pheromone attracting beneficial insects. ARS replicated and patented the beneficial bug's natural pheromone, which attracts soldier bugs of both sexes as well as the immature bugs. Sterling International, Inc., of Liberty Lake, WA, obtained an exclusive license for the chemical blend and formulated it into a plastic cone. ARS scientists evaluated the various formulations to find the most effective one.

Insect Chemical Ecology Laboratory
Jeffrey R. Aldrich

A fossilized mite, estimated to be 35 to 40 million years old, is providing critical information on mites that have potential as biological controls. Found inside a piece of Baltic amber from Denmark, these mites are primitive ancestors of those that today feed on other mites and small crop-damaging insects. Known as teneriffiid mites, these modern-day descendants could become biological control agents to kill other small mites and insects that are pests of agricultural crops. The fossil provided scientists with the first detailed sample of ancestors of the mite family. It allowed them to study the evolutionary link between the ancient mite and its modern ancestors--a link that could provide answers as to how they are related to other species that could also be used in biological controls. This information will aid scientists who identify and classify mites and will help biological control specialists in their quest to locate effective control agents.

Systematic Entomology Laboratory
Robert L. Smiley



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)
P.O. Box 1061, Beltsville, MD 20704-1061

December 1992/January 1993

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Friends of Agricultural Research-Beltsville, Inc. (FAR-B) is in its seventh year and your continued loyal participation has enabled our organization to provide reliable and meaningful support to BARC research and related activities, particularly to the annual BARC Symposium, the National Visitors Center, as well as BARC's scientific and community concerns and events. Significantly, our quarterly newsletter keeps you informed about FAR-B's involvement in BARC's affairs as well as about BARC fiscal status and research activities and achievements.

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members at cost. Arrangements for a Beltsville Station of the Post Office are being made by Bill Wergin; FAR-B will benefit from the sales of specially post-marked envelopes. In addition, we are planning to invite several stamp collectors to exhibit their collections in the same room used for the Post Office.

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BARBARA A LEONHARDT
JAMES L. VAUGHN
Co-Chairs, Symposium XVIII

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K. DARWIN MURRELL
Director, BA

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Alexander Smith

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The Taiwanese were regulatory officials here to look at food safety and pesticide residue monitoring. As part of their tour of ARS science, they attended a talk by chemist, Albert E. Herner of the Environmental Chemistry Laboratory.

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Environmental Chemistry Laboratory
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February 1993

ANNUAL MEETING MARCH 9
2 PM VISITOR CENTER THEATER ROOM
REFRESHMENTS FOLLOWING

PRESIDENT'S REPORT

I urge you to attend the 8th Annual Meeting of FAR-B on March 9 to review and advise about our affairs and particularly to elect or re-elect six new officers and Board members. The nominating committee, chaired by Bill Bailey, proposes the following slate of nominees: President - John Moseman; Vice-President - Frank Longen; Treasurer - Bill Bailey; Board Member - George Irving; Board Member - Bill Hollis; and Board Member - Morton Beroza. All are nominated for 3-year terms and have agreed to serve if elected. Other Board members not subject to re-election this year are Gus Hanson and Pat Jackson. I will remain on The Board as an ex-officio member.

At the Annual Meeting BARC Director, Dr. K. Darwin Murrell will be guest speaker and will advise us about pertinent personalities, prospects, programs, progress, and events at Beltsville and beyond in ARS.

Note that this issue of your Newsletter contains late information about the imminent BARC Symposium XVIII - Pest Management: Biologically Based Technologies which will take place at Beltsville during May 2-6, 1993.

We are saddened by the death of Dr. Victor Boswell on January 31, 1993. He was 92 years old. Dr. Boswell was a charter member of FAR-B and was a Director, during 1986-1989, on its first Board. His synoptic biography appears elsewhere in this Newsletter.

Again, come to your Annual Meeting so that your Board of Directors can meet with each of you again.

ALBERT A. PIRINGER
President

BELTSVILLE SYMPOSIUM XVIII

Final plans are now being made for the 1993 Beltsville Symposium to be held on May 2-6, 1993. Instructions for preparing manuscripts have been sent to all of the invited speakers and the draft copies of the manuscripts are due in Beltsville on March 1st. The manuscripts will be peer reviewed and returned to the authors by March 25. The revised manuscript is to be ready at the start of

the Symposium. We expect to have the proceedings ready for distribution by October 1993.

The response to the initial announcement and to publicity in selected scientific journals has been good. We have received 245 requests for registration forms and these are now being mailed. Thus far, there have been 54 titles submitted for the poster session on Monday night. Many of these have been submitted by people from commercial companies. Another measure of the interest of companies in the Symposium is that FAR-B has received \$9,850 in contributions to support the program.

FAR-B retired members are reminded that they must register for the Symposium, but that their registration fees will be waived for the technical program. This includes the reception on Sunday and the poster session on Monday. Tickets for the buffet and tour of the National Aquarium will be available at cost to retired FAR-B members and the organizing Committee invites all of you to attend this social event.

BARBARA A. LEONHARDT
JAMES L. VAUGHN
Co-Chairs, Symposium XVIII

DUES RENEWAL TIME

April 1 will mark the beginning of the 8th year of FAR-B, and time again to renew your dues for the 1993 membership year - which runs through March 31, 1994. We are pleased to report that several of our members have already sent in their dues and we hope that a good number of those who will attend the Annual Meeting on March 9 will do so at that time. If you cannot attend the Annual Meeting you can help us out on the paperwork by sending your dues payment after you read this Newsletter. Dues for 1993 remain the same as in the past - \$500 for Sustaining Members; \$100 for Patrons; \$20 for Personal Members; and \$10 for Associate Members (current USDA employees). Checks should be made payable to FAR-B and sent to P.O. Box 1061, Beltsville, MD 20704-1061. Your continued support is vital to our ability to assist the Beltsville Agricultural Research Center.

FRANK LONGEN
Treasurer

VICTOR R. BOSWELL (1900-1993)

Victor Boswell was born in Joplin, Missouri, on August 8, 1900. Soon after, his family moved to a small farm near Carthage, Missouri, where he benefitted from all of the joys and tribulations of childhood responsibilities and chores on the family farm. His earliest education came from a dedicated mother as well as in a one-room rural school in the Ozarks. His youthful aversion for farm-animal chores and concomitant love for fruit and vegetable gardening inspired him to seek a horticultural career in college.

He earned a B.S. degree in Agriculture from the University of Missouri (Columbia) in 1922; and M.S. and Ph.D. degrees in Horticulture at the University of Maryland (College Park) in 1923 and 1926 respectively.

As a freshman at the University of Missouri during 1917-18, he served in the Student Army Training corps until the Armistice. As an undergraduate in the Department of Horticulture at Missouri, Victor's education and training was nurtured by some of the era's horticultural "heavy-hitters": M.F. Chandler (winter-hardiness); J.T. Rosa (vegetable breeding); H.G. Swarthout (berry fruits); F.C. Bradford (pomology); and V.R. Gardener (pomology). Victor wanted to continue his graduate career as a pomologist but his Professor/Advisor V.R. Gardener opined that pomologists were then a "dime a dozen" and he strongly urged Victor to seek his horticultural career with vegetables.

Victor acceded to Dr. Gardener's wisdom and counsel and accepted a graduate Fellowship at the University of Maryland to study vegetables - and "the die was cast."

At the University of Maryland, he was influenced by H.A. Jones, C.O. Appleman, and E.C. Auchter who ultimately was his advisor and boss. During six years at the University of Maryland Department of Horticulture, Dr. Boswell was progressively promoted from Research Assistant (1922) to Professor of Olericulture (1928)

In 1928, at age 28, Dr. Boswell was lured by Dr. Auchter to join the USDA Bureau of Plant Industry and during 1928-35 was Senior Horticulturist in Charge of Vegetable Investigations with offices in Washington and research plots at Arlington Farms in Virginia. In 1935, Dr. Boswell and much of the Bureau of Plant Industry, Soils and Agriculture Engineering moved to Beltsville. During the 35 years from 1935 to his retirement in 1969, Dr. Boswell was progressively promoted within ARS or its equivalent as follows: Principal Horticulturist (1935-41); Assistant Head, Crops Research Division, BPI (1941-51); Head, Vegetable Crops Section, Horticultural Crops Research Branch, CRD, (1951-7); Chief, Vegetable and Ornamental Crops Research Branch, CRD (1957-65); and Assistant Director, Crops Research Division (1965-69). As a USDA Research Administrator, Dr. Boswell assiduously husbanded the public resources assigned for his management: he scrupulously monitored and dispensed those allotted monies. He admitted recently in memoirs that "I got the reputation of being a hard man with a dollar".

From 1966 until his retirement in February 1969, Dr. Boswell was the ARS liaison to the Science and Education Administration (SEA) USDA to facilitate the development of the Current Research Information System (CRIS) and his major effort was "Cleaning up the word bank".

In 1935, Dr. Boswell had a key leadership role planning and establishing the Southeastern Regional Vegetable Breeding Station at Charleston, South Carolina as well as fostering its cooperative relationship with 13 southeastern states. During 1945-6, he was on loan from USDA to the War Department as a Scientific Agriculture Consultant in Japan where he particularly advised about sweet potato culture and storage. During 1954-7, he was chairman of the Division of Biology and Agriculture of the National Research Council. Dr. Boswell was an organizing force promoting the First International Symposium on Biological Control of Soil-Born Pathogens. In 1939, Dr. Boswell was elected President of the American Society for Horticultural Science (ASHS).

Dr. Boswell was a renowned authority about Vegetable-Crop production, physiology, and breeding. He was a prolific writer and authored numerous significant publications and articles about vegetables.

Dr. Boswell was an enthusiastic supporter and Charter member of the Friends of Agricultural Research - Beltsville (FAR-B) and he was a member of its first Board of Directors (1986-9)

Dr. Boswell died on January 31, 1993.

VISITORS CENTER

Foreign Guests:

His new appointment as Secretary of Agriculture is his first public service position. Secretary Roberto S. Sebastian of the Republic of the Philippines arrived here to improve his knowledge of the U.S. public research system in agriculture. Sebastian had been an executive in several agribusiness companies. He said that the new government in the Philippines wants him to build up private trade and exports. At Beltsville, he met with Donald Bills, Director of the Product Quality and Development Institute, Ronald Korcak, Research Leader of the Fruit Laboratory, and Stephen Sinden, RL of the Vegetable Laboratory, after his visit to the ARS National Visitor Center, NVC.

Distinguished U.S. Visitors:

The Council on Dairy Cattle Breeding met with ARS Administrator R. Dean Plowman at the NVC to form consensus of their four groups on research recommendations. The Council's four groups are the National Dairy Herd Improvement Association, the National Association of Animal Breeders, the Pure Breed Dairy Cattle Association and the Holstein Association. Duane Norman, Research Leader of the ARS Animal Improvement Programs Laboratory, also arranged for Steve Berberich to explain the NVC program.

Highlights of 1992:

Whereas in 1991 we tried to upgrade services to visitors from education (a 60 percent share of NVC visitors), in 1992 we made a special effort for professional groups from commerce, science and agriculture (a 30 percent share). We added Tektran, the ARS technology tracking data base, to our exhibit hall.

A new resource corner of our exhibit hall was more useful to teachers and education coordinators of other agencies. Steve Berberich brought well-targeted materials from his talks at the national conference of state coordinators of USDA's Ag In The Classroom, and at the Kellogg Foundation's Teacher Workshop on Biotechnology. Last year, teacher, VIG's (very influential groups) included National Science Teacher's Association, Eastern Regional Agricultural Education Conference, National Consortium for Specialized Secondary Schools of Mathematics, Science and Technology, and Women's College Coalition.

Foreign guests came from 79 nations--foreign VIP's were too numerous to highlight here. Agencies contacting the NVC for the first time included the China National Sparks Corporation, ASM/China Group, Washington (D.C.) Center for China Studies, and Diversified Resources.

In our exhibit hall, a model of the NVC grounds, 1" to 16', was build and displayed by Michael Combs. The hall also received a 40% boost in illumination with a new design and installation of fixtures.

A national dairy science exhibit at the milking parlor was completed for the NVC tours. Thanks for special efforts go to Associate Deputy Administrator Robert Oltjen, Beltsville Director Darwin Murrell, and Information Staff Director Robert Norton.

BELTSVILLE RESEARCH, A CONTINUING STORY

Eating more carbohydrates did not improve the endurance or strength of men who exercise moderately--unlike the payoffs for marathoners and other athletes who train long and hard. Eighteen men in their 20s and 30s were tested after eating both high and low carbohydrate diets. A third of the men where sedentary. The other two groups either ran (aerobic exercise) or lifted weights (strength training) three to four times a week for an hour or less. After three weeks of getting 62 percent of their calories as carbohydrates, none of the volunteers could pedal a stationary bicycle significantly longer than when they got 42 percent carbohydrates. Nor could their leg muscles overcome any more resistance or their upper bodies bench-press any more weight. Both runners and weight lifters burned significantly more calories per day than the sedentary group. The runners averaged 14 percent more calories daily; the weight-lifters, who trained the hardest, averaged 21

percent more. The findings underscore that people who exercise regularly can eat more calories than sedentary people and still maintain a healthy weight. On the other hand, eating more carbohydrates probably won't improve performance during such exercise. But it cuts down on fat intake, and that's beneficial for everyone.

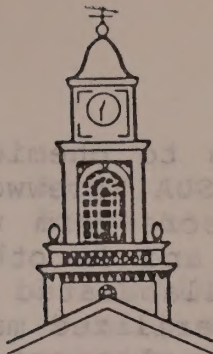
Energy and Protein Nutrition Lab
Joan M. Conway/James L. Seale

Farmers will reap larger harvests if crop plants get new genes telling them when to shed leaves, flowers and fruit--or when to hold on to them. Soybean plants naturally shed, or abscise, 70 to 80 percent of their flowers in response to drought and other stresses. While stress is often short-lived, lost flowers mean fewer soybeans. An enzyme called cellulase is known to help bring about abscission, but ARS researchers are pursuing strategies to make the enzyme serve growers' objectives. They recently discovered that when leaves are shed, cellulase dissolves the biochemical glue between a single layer of stem cells and cells of the departing leaf. Researchers also isolated a bean gene that orders cells to make cellulase. By giving modified versions of the gene to bean, tomato and other test plants, researchers aim to identify the piece of this gene that acts as its on-off switch. Growers of apples, snap beans, cotton, oranges, nuts, tomatoes and other crops could harvest them more efficiently if the fruit abscised all at once instead of over a long period.

Plant Molecular Biology Lab
Mark Tucker

Citrus bacterial canker can be detected quicker with a new "dot blot" test being patented. This worldwide plant disease scars citrus and leaves the fruit unmarketable. Scientists identified the sequence of a DNA fragment found in strains of the most serious and widespread form of the pathogen that causes citrus bacterial canker disease, *Xanthomonas campestris* pv. *citri* (Xcc). This sequence is not found in other bacteria. With this information, they developed a DNA probe for use in a "dot blot" test that is faster, more sensitive, and more specific than previous methods of detecting Xcc, and does not require that the bacteria first be isolated and grown in culture. The test works with lesions on leaves from affected citrus trees. A major problem in identifying the pathogen has been the presence of closely related strains of the bacteria that cause citrus bacterial spot disease, a leaf spotting disease of citrus in Florida nurseries. The new test identifies only strains of the bacteria that cause canker, and works in less than one day. Although citrus bacterial canker is not now present in the United States, more than \$100 million was spent on ridding Florida of the disease between 1984 and 1988. All suspect trees and nursery stock were destroyed.

Fruit Lab
John S. Hartung



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)
P.O. Box 1061, Beltsville, MD 20704-1061

October 1992

PRESIDENT'S REPORT

You were advised in the last FAR-B Newsletter (June 1992) that in mid-May the Beltsville Area Director Dr. Essex E. Finney, Jr. became the Associate Administrator of ARS and was relocated to Washington. Dr. Finney is now FAR-B's highest ranking associate member in ARS.

In July 1992 Dr. K. Darwin Murrell was named Director of the Beltsville Area. He came to the Beltsville Area after serving as the Director of the Midwest Area in Peoria, Illinois but is no stranger to Beltsville. He trained and worked as a microbiologist and parasitologist and joined ARS at Beltsville in 1978 as Laboratory Chief, Helminthic Disease Laboratory. He became a noted authority on foodborne parasites and diseases and was progressively promoted within ARS. Dr. Murrell has joined FAR-B and we welcome him as our newest associate member.

We wish to extend our deepest sympathy to Patricia Jackson, a member of our FAR-B Board of Directors, whose husband, Dudley, passed away recently. Dr. Dudley Jackson, who was a Professor of Hematology at Georgetown University School of Medicine, died suddenly of a heart attack.

ALBERT A. PIRINGER
President

Knipling and Bushland to Receive World Food Prize

The 1992 World Food Prize will be presented to Drs. Edward F. Knipling and Raymond C. Bushland, two renowned ARS entomologists who pioneered the development of biological approaches for the control of insect pests. John Ruan, Chairman of The World Food Prize Foundation, has stated, "This team of visionary scientists dedicated years of relentless scientific research and cooperative effort with U.S. and world organizations to improve the world's food supply and human health". Norman Borlaug, the Nobel Peace Prize Laureate, praised Knipling and Bushland for their "development of an ecologically compatible and sound method of eliminating insect parasites which has contributed to the preservation of a nutritious, stable food supply for the world."

Drs. Knipling and Bushland are both members of the ARS Science Hall

of Fame. They began their search for alternatives to chemical pesticides in the 1930's when both worked at the USDA Screwworm Laboratory in Menard, Texas. At that time, the screwworm was decimating livestock herds in the southwestern U.S. and in other parts of South America. Knipling and Bushland collaborated to successfully eradicate screwworm populations using sterilized male flies. The life cycle of the screwworm was disrupted when native female flies mated with sterile males, and their eggs failed to hatch. The sterile insect technique was used to eradicate the screwworm from the United States in the 1960's and 1970's, from Mexico, Guatemala and Belize in the 1980's, and halt a serious outbreak in Libya in 1991. Scientists believe that this technique will ultimately eliminate this vicious pest from all of the Americas, and thereby preserve an essential source of meat and milk for vast human populations. As the human population triples during the next century, the techniques developed by Knipling and Bushland will be effectively utilized to suppress a wide variety of pests that threaten to destroy the available food supply.

The 1992 Laureates will receive their \$200,000 cash award at a ceremony to be held in Des Moines, Iowa, on October 12 during World Food Week. A reception is being planned for these distinguished scientists at Beltsville. The public reception will be at 10:30 a.m. on Wednesday, October 14, 1992, in Building 003 (Administration Building) at the Beltsville Agricultural Research Center. The Charles Valentine Riley Memorial Foundation is assisting with the arrangements for the recognition activities at Beltsville on October 14. We hope that as many members of FAR-B as possible will attend, participate in this special occasion, and celebrate the achievements of these noble colleagues.

ESSEX E. FINNEY, JR.
Associate Administrator, ARS

BELTSVILLE SYMPOSIUM XVIII

Organization of the 1993 Beltsville Symposium, "Pest Management: Biologically Based Technologies", is complete. The Symposium will be held in the auditorium, Building 003, BARC-West, May 2-6, 1993. Registration will begin on Sunday evening, May 2, at the Holiday Inn (at the Beltway); the posters will be available for preliminary viewing at that time. Four Plenary speakers will open the technical program on Monday, May 3. The FAR-B award ceremony will take place prior to the first speaker. Six half-day sessions will follow: "Biocontrol Agents for Pest Suppression" on Monday afternoon as well as Tuesday morning and afternoon; "Natural Compounds for Pest Management" on Wednesday morning; "Genetic Manipulation of Biocontrol Agents" on Wednesday afternoon; and "Implementation: Needs, Issues, Challenges" on Thursday morning. A total of 46 podium speakers represent ARS (7 from Beltsville and 11 from 10 other locations), other government agencies (4), universities (12), industry (7), and foreign universities or public

sector organizations (5). The proceedings will be published by the American Chemical Society.

A combination poster session and mixer will be held on Monday evening at the Holiday Inn. About 20 invited posters and up to 80 submitted posters will be presented. Demonstrations of computer modeling are also being planned; these include: livestock IPM, chemical structure, gypsy moth management, and quantitation of metabolites. The banquet will be a special event on Wednesday evening at the National Aquarium at the Inner Harbor, Baltimore, MD. The dinner will be catered at the Aquarium with food stations located throughout the exhibits. Bus transportation from BARC will be included.

The Symposium Organizing Committee (B. Leonhardt, J. Vaughn, J. Menn, R. Lumsden, H. Hayes, R. Huettel, J. A. Anderson, and D. Chitwood) anticipate an attendance of about 300-400. The first announcement is being distributed and numerous requests for further information have been received. The final announcement will be ready in December. Professional societies are being contacted to place a meeting announcement in their publication. Solicitation of commercial firms for contributions is underway.

We hope that many FAR-B members and guests will join us at the Symposium. For information, please contact Virginia Hupfer at 301-504-6108.

BARBARA A. LEONHARDT
JAMES L. VAUGHN
Co-Chairs, Symposium XVIII

DIRECTOR'S COMMENTS

The Fiscal Year 1993 ARMPs process is nearing completion. The flat FY'93 budget, coupled with inflation, will result in about 5 percent less discretionary operating funds than in FY'92. The Area has developed a plan to adjust the program's priorities and the Area staff levels to protect high priority research. It is not anticipated that this belt-tightening will have significant impact on the Area this year. In spite of the flat budget for ARS, the Beltsville Area did receive an appropriation of \$13.5 million for its modernization program. This reflects the strong Departmental and Congressional support for the renaissance of Beltsville.

The selection process for the new Directors for the Beltsville Human Nutrition Research Center and the U.S. National Arboretum is nearing completion. It is anticipated that these positions will be filled prior to January 1993.

The Area has a new EEO Manager, Carolyn Moore. Ms. Moore worked previously for the Department's Office of Advocacy and Enterprise. Ms. Moore will place particular emphasis on student programs and on

building stronger linkages with regional 1890 institutions and HBCU's.

Finally, two Beltsville scientists have recently announced their retirements. They are Dr. George Steffans of the Fruit Laboratory, Plant Sciences Institute, and Dr. Dale Waldo of the Ruminant Nutrition Laboratory, Livestock and Poultry Sciences Institute. These two outstanding ARS scientists will be sorely missed, both for their contribution to the Agency's mission and because of their influence and support for their fellow scientists and support personnel. Please join us in wishing them both many satisfying and productive days ahead as they begin another phase in their careers.

K. DARWIN MURRELL
Director, BA

MOVING INTO BUILDING 007

On Monday, September 14, the Systems Research and Hydrology Laboratories moved back into their renovated facilities in Building 007. The Remote Sensing Research Laboratory plans to move back on October 19. These three NRI labs occupy space in the basement and first floor of 007, where little laboratory renovation was necessary. A major problem in moving back into the second and third floors has been the delivery of new laboratory furniture for the Environmental Chemistry Lab on the second floor and the Insect Chemical Ecology Lab on the third floor. The first shipment of new laboratory furniture arrived on Monday, September 21, and will take approximately a week to place in the appropriate labs. The contractor estimates it will take approximately 2 months to install the furniture and test the support systems. In addition, prior to reoccupancy of the 2nd and 3rd floors, modification of air flow systems for the chemical hoods must be made to reduce the noise levels. The remaining two laboratories, Environmental Chemistry and Insect Chemical Ecology Laboratories, will probably move into the renovated lab space the early part of the new year. When these moves are completed, Building 007 will house 95 NRI employees, of which 30 are SY's, and 24 PSI employees, of which 7 are SY's.

PHILIP C. KEARNEY
Deputy Area Director, NRI

VISITOR CENTER

After spending most of August 27 on a VIP tour of ARS work at Beltsville, Assistant Secretary of Agriculture Duane Acker shared four impressions with about 30 distinguished USDA guests including the heads of nine agencies. "We heard at the Visitor Center that we have a world class research organization. Yes, there is a lot of clear thinking by some 6,000 ARS scientists. Second, we heard that agriculture still is responsible for some 26 percent of the

nation's GNP. This means one of the highest potentials for improving our global competitiveness. Third, there were Plowman's comments on CRADA's (Cooperative Research and Development Agreements): there is great progress in moving technology out to users. And fourth, remember the linkages with other agencies than ARS.

The month of July included many distinguished guests from foreign countries:

From Europe, three Dutch members of the European Parliament.

The Deputy Minister of Agriculture of the Russian Federation, Anatoly Puponin, formerly of their acclaimed Timiryazev Agricultural Academy met with acting Director Gordon Marten, International Research Administrator of the Office of International Cooperation and Development (OICD) Jim Butcher, and head of the ARS National Visitor Center (NVC) Steve Berberich.

OICD also sent 32 "independent farmers and farm managers" from Czechoslovakia for a tour of ARS animal science.

Ireland's Michael Walsh, a principal administrator on agriculture for the Commission of the European Communities (the EC), was sent to the NVC by the USDA Graduate School and the U.S. Information Agency.

The Counselor of Agricultural Affairs at the German Embassy, Juergen Heitmann, marked his first visit to Beltsville by accompanying a bus load of science students from the University of Erlangen-Nurnberg to the NVC.

On their way to "view dairy and agronomic practices in our closest climatic/crop equivalents to Latvia (Michigan and Wisconsin)," four leading agriculturists from Latvia spent an afternoon at Beltsville.

From Asia, Chen Chuangoun, the Deputy Director of the Science and Technology Commission of Zhejiang led a delegation of Chinese agricultural professors, managers and engineers sent to us through the China National Sparks Corporation.

The Embassy of the People's Republic of China, and the Institute of International Development and Education in Agriculture and Life Sciences, Inc., brought a delegation of scientists from their Office of Science and Technology.

The Head of Animal Pathology at the University of Ankara in Turkey, Professor Cemalettin Kokuuslu.

From Latin America, the Chairman of the Caribbean Farmers Development Company visited from Kingston, St. Vincent arranged through the Institute of International Education, Washington, D.C.

Trying to broaden his work in "the behavior of pesticides in tropical environments, Panamanian scientist Jaime Gonzalas visited the Research Leader of the ARS Environmental Chemistry Laboratory Robert Wright and Plant Physiologist Allan Isensee of the ARS Pesticide Degradation Laboratory after an orientation to ARS here.

A delegation of Jamaican officials visited. They were working on solutions to a common third world dilemma: boosting exports of non-traditional (non-colonial) crops such as yams, breadfruit and papaya.

From around the globe, the American Cyanamid Company brought 25 of their research managers from overseas experiment stations.

Research leaders from Nigeria, Malawi, Venezuela, Sri Lanka, Bangladesh, and Rwanda came with USDA Short Course on Management of Agriculture Research.

Also from the African continent, 24 Egyptian scientists who visited because of special interests in integrated pest management.

The National Future Farmers of American sent us 11 students of agricultural science from Germany.

Individual farmers also visited from Germany, Korea, and Chile.

We are planning to hold our second Volunteer Appreciation Day awards ceremony on November 13, 1992 at 3 p.m. Following will be a mixer with community leaders. FAR-B members are cordially welcomed to attend. Thank you.

STEVE BERBERICH, Director
National Visitor Center

BELTSVILLE RESEARCH, A CONTINUING STORY

A natural insecticide that comes from neem, a tropical mahogany tree, can give growers and home gardeners alternatives to synthetic insecticides like diazinon, malathion and carbaryl. ARS scientists studied the neem seed extract in the late seventies and identified an active chemical as azadirachtin. Tests showed the extract would control over 80 major insect pests by disrupting hormonal changes in the insect larva, causing death during molting. Neem is effective against greenhouse insects such as whiteflies as well as other pests like beetles, grasshoppers, aphids, weevils, fruit flies, gypsy moths and mosquitoes. The ARS studies helped pave the way for development of commercial products based on neem extract. Three commercial formulations--Azatin, BioNeem and Margosan-O--are registered for use on ornamentals and other non-food plants. Registration for use on food crops is underway. The extract's complicated molecule makes it difficult for these insects to develop resistance to it, unlike synthetic sprays. However,

it's not toxic to honey bees, other beneficial insects and earthworms and won't harm birds or humans. ARS scientists currently are looking at other neem-based products for use as a fungicide.

Florist and Nursery Crops Laboratory
Jim Locke

A streamlined analysis for cholesterol in mixed foods cuts 75 percent of the time and considerable cost off the method currently sanctioned by the Association of Official Analytical Chemists. The new method would be useful to food companies that are analyzing mixed foods, such as chili or meat loaf, to meet labeling requirements regarding cholesterol. Like the official AOAC method, it uses a chloroform-methanol-water solvent system to extract lipids (fat and cholesterol) from the mixed foods, but the remaining steps have been streamlined, updated or eliminated. The simplified method measures cholesterol with a gas chromatograph--standard equipment in most analytical labs. Other methods that don't require solvent extraction are more popular because chloroform can be toxic to workers and is costly to dispose. However, the solvent-extraction method is more versatile, because it allows scientists to measure total fat and assess the composition of fatty acids--polyunsaturated, monounsaturated and saturated--as well as measure cholesterol.

Nutrient Composition Laboratory
Human Nutrition Research Center
Raymond H. Thompson, Jr.

Chromium acts on the body's insulin-secreting cells, new findings show, as well as on the insulin molecule itself. Beta cells in the pancreas manufacture and store insulin until a rising blood sugar level signals them to release it. Now a study of rats fed either chromium-deficient or chromium-sufficient diets shows that the element enables the cells to respond quickly to the glucose signal. The pancreases of chromium-deficient rats secreted 40 to 50 percent less insulin than those of chromium-sufficient animals during the early stages of stimulation with glucose. Chromium helps normalize blood sugar levels, but few people get even 50 micrograms (mcg) of this essential trace element daily--the bottom of the suggested 50 to 200 mcg/day intake. It is known to make circulating insulin more efficient at getting blood glucose into body cells and metabolized. Apparently, it also helps the beta cells secrete enough insulin to handle the glucose from a meal.

Vitamin and Mineral Nutrition Laboratory
Human Nutrition Research Center
Richard A. Anderson and John S. Striffler

A money-saving "pollution solution" for excess fertilizer could come from a simple test of a leaf's protein and starch levels. Growers of soybeans and other legumes currently have to

make an educated guess on whether young crop plants need more nitrogen or ammonia fertilizer. But ARS tests indicate that checking the leaves' protein and carbohydrate (starch) levels can give a more scientifically based answer. The scientists found that these levels indicate how well nitrogen-fixing bacteria are working effectively--combining with roots to convert nitrogen to ammonia--more fertilizer isn't necessary. That, in turn, could help protect groundwater, lakes, rivers and streams against pollution by excess fertilizers. The scientists aim to develop a simple and inexpensive test that is as easy to use as soil-testing kits now on the market.

Climate Stress Laboratory

J. Michael Robinson

Cone-shaped pieces of plastic resembling badminton birdies are helping gardeners fight over 100 garden and shade tree pests this summer. Inside the cone--marketed as Rescue--is a sex scent, or pheromone, that attracts spined soldier bugs into an area so they will devour gypsy moth caterpillars, Mexican bean beetles, cabbage loopers, corn earworms, and other pests. One cone can attract 50 or more spined soldier bugs in one day, if it is put out one week before the bud-burst of the red maple tree from early March to mid-April. It is the first commercial pheromone attracting beneficial insects. ARS replicated and patented the beneficial bug's natural pheromone, which attracts soldier bugs of both sexes as well as the immature bugs. Sterling International, Inc., of Liberty Lake, WA, obtained an exclusive license for the chemical blend and formulated it into a plastic cone. ARS scientists evaluated the various formulations to find the most effective one.

Insect Chemical Ecology Laboratory

Jeffrey R. Aldrich

A fossilized mite, estimated to be 35 to 40 million years old, is providing critical information on mites that have potential as biological controls. Found inside a piece of Baltic amber from Denmark, these mites are primitive ancestors of those that today feed on other mites and small crop-damaging insects. Known as teneriffiid mites, these modern-day descendants could become biological control agents to kill other small mites and insects that are pests of agricultural crops. The fossil provided scientists with the first detailed sample of ancestors of the mite family. It allowed them to study the evolutionary link between the ancient mite and its modern ancestors--a link that could provide answers as to how they are related to other species that could also be used in biological controls. This information will aid scientists who identify and classify mites and will help biological control specialists in their quest to locate effective control agents.

Systematic Entomology Laboratory

Robert L. Smiley



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)
P.O. Box 1061, Beltsville, MD 20704-1061

July 1993

PRESIDENT'S REPORT

The Annual Meeting of the Friends of Agricultural Research-Beltsville, Inc. was held on May 9 at the National Visitors Center in Beltsville. Dr. K. Darwin Murrell, Beltsville Area Director, was the guest speaker. He described the progress that has been made at BARC during the past year and the budget outlook for the foreseeable future. Hopefully, funding for the continued renovation of facilities at Beltsville under the Renaissance '93 program will not be adversely affected. Also at the annual meeting the following officers were elected: President - Dr. John G. Moseman; Vice President - Frank Longen; Treasurer - William A. Bailey; and Board Members - Drs. George Irving, William Hollis, and Morton Beroza. Each of these elected officials will serve for three years.

I thank Dr. Al Piringer for having served as President for the past three plus years, and Frank Longen for having been our Treasurer since 1986. They were both very conscientious and contributed much to the smooth operation of the organization. Drs. Irving and Hollis were re-elected to the Board and Dr. Morton Beroza is a new Board member but a Charter Member of FAR-B. Bill Bailey served as Vice-President for the past three years before assuming the Treasurer's duties.

Beltsville Symposium XVIII entitled "Pest Management: Biologically Based Technologies", which was co-sponsored by FAR-B, was held on May 2-6, 1993 and was a very successful event. There were 367 registrants. Also, 80 posters were displayed and, with one exception, all of the scheduled speakers presented their papers. The highlight social event was a Banquet/Tour at The National Aquarium in Baltimore. As is the custom at these symposia, FAR-B again presented Distinguished Scientist awards. However, because of the several different subject-matter areas covered by Symposium XVIII we decided to present awards to three individuals. This year the recipients were: Dr. Morton Beroza - in recognition of outstanding research accomplishments and inspired leadership in the fields of insect pheromones, other natural products, analytical chemistry, and micro-methodology; Dr. George C. Papavizas - in recognition of pioneering insight into the development of biological control of plant pathogens and for concepts concerning behavior of soilborne plant pathogens and their interaction with beneficial microorganisms which laid the foundation for future developments in this innovative technology; and Dr. Waldemar Klassen - for outstanding research and administrative contributions

to the ARS research programs in pest management and for dedication and vision in developing "Renaissance '93", the plan for revitalizing the research capacities of the Beltsville Agricultural Research Center. Lastly, I wish to commend the Co-Chairs for Symposium XVIII - Dr. Barbara Leonhardt and Dr. James Vaughn - for the outstanding job they did in organizing and coordinating all aspects of this highly successful Symposium.

Beltsville Symposium XIX entitled "Advances in Human Energy Metabolism: Balancing Energy Requirements and Energy Intake" will be held on May 8-11, 1994. Dr. Joan Conway and Dr. William Rumpler are Co-Chairs for that Symposium. A preliminary program has been prepared and several committees have been appointed.

One of the highlights of the year was the ground-breaking for the new Plant Science Institute Building which took place on April 26. This will be the first new building at BARC since the Biological Science Building was built around 1970. The Horticultural Science Laboratories will be housed in this new building. A number of dignitaries were present for the ground-breaking ceremonies, including Secretary of Agriculture Mike Espy, Senator Paul S. Sarbanes, and Congressman Steny H. Hoyer.

Beltsville's annual Poster Day took place June 22. The Poster Day featured posters by the Postdoctoral appointees at BARC and young scientists with two or less years of service at BARC. The Annual Beltsville Area Awards Ceremony, which was also scheduled on June 22, was postponed until later in 1993.

Finally, I would urge that each of our FAR-B members encourage your friends and associates who were or are currently associated with BARC to become members of FAR-B. Retirees can become Personal Members with an annual contribution of \$20. Current employees can become Associate Members with an annual contribution of \$10. Membership fees can be sent to FAR-B, Inc. P.O. Box 1061, Beltsville, MD 20704-1061.

JOHN G. MOSEMAN
President

BELTSVILLE SYMPOSIUM XVIII

The 1993 Beltsville Symposium on "Pest Management: Biologically Based Technologies" was held May 2-6, 1993. The broad subject area of the Symposium was reflected in the 47 podium and 80 poster/computer presentations made to 367 registrants, 32 of whom were from foreign countries. ARS employees constituted 45% of the registrations: 119 from BARC and 47 from other locations. The balance represented other government agencies (13%), universities (17%), industry (20%) and miscellaneous including FAR-B (5%). Presenters from 16 BARC laboratories and from 23 other ARS locations were included in the program; the remainder of the presenters were from other government agencies, universities and private industry. As part of the program, the attendees journeyed to the National Aquarium in Baltimore, MD on May 5 for a private

tour and a buffet dinner. The proceedings of the Symposium will be published by the American Chemical Society later this year and will be co-edited by Robert D. Lumsden and James L. Vaughn. The Symposium received \$9850 in contributions from industry as a result of FAR-B solicitation. Contributors included Valent USA Corporation, Walnut Creek, CA; CIBA-GEIGY Corporation, Greensboro, NC; DU PONT, Newark, DE; Sandoz Agro, Inc., Palo Alto, CA; Entotech, Inc., Davis, CA; Gardens Alive, Lawrenceburg, IN; O.M. Scott & Sons Company, Marysville, OH; Pioneer Hi-Bred International, Inc., Johnston, IA; ISK Biotech Corporation, Mentor, OH; American Cyanamid Company, Princeton, NJ; EcoScience Corporation, Worcester, MA; and Grace Sierra, Allentown, PA. After the expense of publishing the proceedings, the Symposium should realize about \$9,000 in excess of total expenses. Of course, FAR-B will carry this amount over to next year's Symposium. The organizers of the Symposium wish to offer their sincere thanks to the members of FAR-B for their enthusiastic participation and assistance.

BARBARA A. LEONHARDT
JAMES L. VAUGHN
Co-Chairs, Symposium XVIII

BELTSVILLE SYMPOSIUM XIX

The 1994 Beltsville Symposium is entitled, "Advances in Human Energy Metabolism: Balancing Energy Requirements and Energy Intake", and will take place Sunday, May 8th through Wednesday, May 11th, 1994. The opening mixer (5/8) and Poster Session (5/9) will take place at the Holiday Inn in Beltsville. The banquet is scheduled to take place on Tuesday evening and we are currently negotiating for a site in downtown Washington, D.C.

The 1994 Symposium committee consists of scientists from BHNRC: Joan Conway, Bill Rumpler, Jim Seale, Paul Moe, Bev Clevidence, Judy Hallfrisch, Joanne Holden, and Betty Li and from ASI: Al Mitchell. The committee has obtained commitments from 27 speakers who will contribute in the following areas: Energy Requirements, Energy Intake, Components of Energy Metabolism: Bridging Intake and Requirements and Energy Value of Food. The final session will be a panel discussion open to the press.

As in the past FAR-B will contact industry and the private sector to request financial assistance for the support of the 1994 Symposium. The representative from the committee to FAR-B is Jim Seale (301-504-8127). Symposium Co-Chair are Joan Marie Conway (301-504-8977) and Bill Rumpler (301-504-8360) of the BHNRC, Energy and Protein Nutrition Laboratory, Bldg. 308, Rm. 215, Beltsville, MD 20705. Facsimile number is 301-504-9251.

JOAN MARIE CONWAY
WILLIAM V. RUMPLER
Co-Chairs, SYMPOSIUM XIX

DIRECTOR'S COMMENTS

Much of our attention at Beltsville over the past few months has been focused on coping with the reduction in Full-time Employees (FTEs) mandated by the Office of Management and Budget. This cut caused an abrupt about face in our drive to reduce Research Support Agreements (RSA) with universities and to increasing Federalized support positions. However, the need to bring on critical staff, especially for our summer field work, makes it necessary to continue utilizing RSAs. We owe the University of Maryland, a big thanks for their cooperation and help in this sudden and large undertaking. For next year, we will be operating under a new (and lower) FTE ceiling. The laboratories are now engaged in planning how to get their work done under these new constraints. These are problems that will not go away soon, but everyone at the Center and at the U.S. National Arboretum are sincerely trying to cope and I appreciate their spirit and dedication.

We are also making contingency plans for the modernization effort. Because of the signals from Congress that dollars for facility improvement may be tight, we are prepared to cope with a reduced appropriation and still get the important projects underway (e.g., renovation of Building 001, electrical systems upgrade, design for the Beltsville Human Nutrition Center and planning for new livestock facilities for the Livestock and Poultry Sciences Institute).

Finally, the recent successful dedication of the new Plant Science Building, the great compliments received for the May BARC Symposium, and the initiation of the Sustainable Agriculture Project make us all glad to be associated with this great Research Center and optimistic for the future. The consistent and strong support of FAR-B is vital to our continued success.

K. DARWIN MURRELL
Director, BA

A NOTE OF SADNESS

Since our last Newsletter, we have learned of the deaths of several well-known personalities who spent much of their careers at the Beltsville Agricultural Research Center. Dr. Hugo O. Graumann and his wife, Modelle, both died as a result of a tragic automobile accident on May 11. Mrs. Graumann died on the day of the accident and Dr. Graumann passed away on May 28. Dr. Graumann was a native of Granite, Oklahoma, and attended what is now Oklahoma State University where he took his undergraduate work and also earned a master's and doctoral degree in Agronomy. He joined the USDA in 1942 as a researcher at the University of Nebraska. In 1953 he transferred to Beltsville where he served as a research investigator and administrator, including Director of the Crops

Research Division. He later served as Deputy Administrator for Plant Science in ARS and at the time of his retirement in 1980, he was a chief scientist in the Department's Science and Education Administration. Dr. Graumann was a past president of the Crop Science Society of America, a fellow of the American Society of Agronomy, and a member of the American Genetic Association. Mrs. Graumann was also a native of Oklahoma and worked as a Secretary at the Naval Ordinance Laboratory for many years before retiring in the late 70's. Dr. Graumann and his wife were 79 and 77 respectively at the time of their deaths.

Dr. G. Ram Chandra, a Research Biochemist at BARC for 25 years, died on June 5, following a stroke. Dr. Chandra retired in 1991 for health reasons. During his career at BARC, he was an authority in plant molecular biology. He was also a member of the Society for Biological Chemists and the Society of Plant Physiology. Dr. Chandra was a native of India and lived in Canada before coming to the United States in the early 1960's. He graduated from college in India and received a doctorate in Plant Physiology from the University of Alberta in Canada.

Dr. Clarence H. Hanson died at his home in Gettysburg, PA on June 4. During most of his career, he served as Research Leader of the nationwide program for Alfalfa Improvement at the Research Center in Beltsville. At the time of his retirement in 1974, he was Forage and Seed Specialist on the National Program Staff. Born in Dekalb, IL, he grew up near LaPorte, MN. He received his BS, Masters, and Ph.D. degrees at the Universities of Minnesota, Missouri, and North Carolina, respectively. Dr. Hanson authored or co-authored more than 75 publications in scientific journals, including editorship of "Alfalfa Science and Technology", a book which served as a reference source to scientists and teachers. He served for 12 years as Chairman of the National Certified Alfalfa Review Board. He was also a past President of the Crop Sciences Society of America, and for 14 years, served as Permanent Secretary of the International Alfalfa Improvement Conference. After retiring in 1974, he made his home in Gettysburg. He was 80 at the time of his death.

Word was also recently received that Dr. Donald M. Crooks passed away in San Diego, California last November at the age of 90. Dr. Crooks retired from the former Crops Research Division of ARS in 1968. A native of Cicero, Indiana, Dr. Crooks took his undergraduate training in Botany at Ball State Teacher's College and earned his MS and Ph.D. degrees in Plant Genetics at the University of Chicago. Prior to his Federal Service, he taught at the high school and university levels at Ball State and at Arizona State University. He was Professor and Department Head (Botany) at ASU from 1936 to 1940 when he accepted an appointment as Senior Plant Anatomist with the former Bureau of Plant Industry. From 1945 to 1955, he was Director of the Tobacco, Medicinal and Specialty Crops Division of BPI and became Assistant Director of

the Crops Research Division of ARS in 1957, serving in that capacity until his retirement in 1968. Following retirement he worked as a Consultant for the Ford Foundation in Pakistan before making San Diego his retirement home. He held memberships in the AAAS and the Botany Society of America.

VISITORS CENTER

The following were guests from Foreign Countries:

We got an unexpected, late afternoon visit by a delegation of Chinese agriculturists, through the University of Maryland. A second group brought by Chi, the Associate Director of the University of Maryland Information and Telecommunications Studies Program, were science and economics professors from six PRC Universities. Another surprise guest was Jana Simonova, the Czechoslovakian Republic Embassy's Attache for Science and Technology. Orville Bentley, former Assistant USDA Secretary, accompanied a Venezuelan delegation to the National Visitor Center (NVC). Organized through USDA's Office of International Cooperation and Development, they were agricultural leaders who were in town for the Venezuela-United States Agricultural Commission Progress Review Meeting. From Argentina, agribusinessman Claudio Sabsay came through USDA's Foreign Agriculture Service for an all day tour including talks with produce-and-information-systems-oriented scientists.

From the Baltic States came Ilgvars Krumins, Deputy Director of Scientific Research, Latvian Institute of Scientific Research, and colleagues; three senior forage scientists of Lithuania; and Hindrek Older, Vice Director of the Estonian Research Institute of Agriculture and Land Reclamation, with colleagues. Southern Asia was well represented by nine members of the Parliament of Thailand, a research team from Malaysia, and visitors from Indonesia, India, and the Philippines. For guests from Bangladesh, farming systems was the topic of the day. Daulatun Nessa Chowdhury, Senior Scientific Officer for Plant Breeding and Sardoar Mohammad Farid, Senior Scientific Officer for Agronomy were both from their Agriculture Research Institute. After the NVC, they visited with Ben Coffman, RL, ARS Weed Science Laboratory and Jane Gates, of the Alternative Farming Information Center, National Agricultural Library (NAL).

Two Egyptian groups of contrasting interests came to us through contrasting arrangements. Farmers owning 12 to 500 feddans (or acres) visited through the Farmer-to-Farmer Outreach Program of the Agricultural Cooperative Development International. ACDI is an association of companies such as Agway, Sunkist Growers, Southern States Cooperative and Growmark. The NVC's Marge Fellows put together a dynamic program of ARS experts on tomatoes, potatoes,

dairy, and honeybees. The second Egyptian group were plant scientists, arranged informally through Fawzy Hashem, a visiting Egyptian scientist in the ARS Soybean and Alfalfa Laboratory. Hashem, who does his own language interpreting, has brought several such groups to us. Richard Payne of the USDA's Agricultural Marketing Service's Seed Testing Laboratory at Beltsville also met with the group.

Other Groups came from Japan, Nigeria, Canada, and several members from the Ministry of Agriculture, People's Republic of China. This Chinese group was sent by the International Visitors Center in Baltimore with a written objective asking what is the "function of the U.S. Department of Agriculture and how does it guide American agricultural policy?" For the third straight year, the annual class from the Agricultural Leadership Foundation (ALF) of Hawaii were some of the brightest agricultural minds to visit this year. Their visit, through the Cooperative Extension Service, University of Hawaii, is part of an effort, says the ALF brochure, to use education to fight trends of rising costs of land, labor and marketing which are crippling Hawaiian agricultural industries.

These were our guests from U.S. Trade, Science and Agriculture:

NAL's Animal Welfare Information Center, as part of their workshop, arranged for an NVC tour for visitors from the Food and Drug Administration, National Institutes of Health and some pharmaceutical companies.

Ted David, Deputy Chief of USDA's Finance Office.

Following the Nutrition and Education Training Conference of the USDA's Food and Nutrition Service, we provided a tour including stops with James Seale, Joan Conway and Evelyn Lashley of the Beltsville Human Nutrition Research Center.

Other groups represented Department of Defense's Amphibious Welfare School, Illinois Farm Bureau, Pennsylvania State Grange, and Goddard Space Center retiree Association.

BELTSVILLE RESEARCH, A CONTINUING STORY

A simple blood test for calves may help beef producers put leaner meat on our tables. One way of obtaining lean-beef animals is to use bulls produced by crossing traditional breeds with so-called "double-muscled" breeds that have larger muscles and very little fat. But not all bull calves from these unions inherit traits for lean meat. To identify those that do, ARS researchers developed a blood test that measures levels of creatine, a protein produced by muscles. In all cases, calves that inherited the double-muscle, lean-meat traits had higher levels of creatine.

Meat Science Research Lab
Morse B. Solomon

Rice breeders can now get five new ARS breeding lines of rice with more of an essential amino acid, lysine. The extra lysine, about 15 percent more than in a typical variety, makes rice a more nutritionally balanced protein. This would especially help people in developing countries where rice is the main-sometimes nearly the only-protein source. Current rice varieties grown in the world are low in lysine, but high-lysine ones bred from the new lines could be available in a few years. Scientists used a biotechnology method called inhibitor selection to identify rice cells with a natural genetic mutation that kept them making lysine longer than other cells. Then they regenerated and field tested whole plants from the high-lysine cells. About 95 percent of rice is consumed in the countries where it's grown. But the United States exported more than 40 percent of its rice in 1991, accounting for one-sixth of global exports.

Plant Molecular Biology Lab
Gideon Schaeffer

A corn earworm female won't mate until she knows there are nearby plants her offspring can eat. And when she does mate, the male passes along not only sperm but a protein that stops her from luring other males-and may also cause her to lose interest in sex until she lays her eggs. Those first-of-a-kind findings by ARS researchers could lead to environmentally friendly controls for the pest, which damages an estimated \$1.2 billion in crops each year. Scientists say the earworm female won't release a sex attractant until she senses plant chemicals that tell her food is available for her offspring. Once she mates, the male earworm transmits what's called a pheromonostatic peptide (PSP), which appears to prevent her from releasing any more sex attractant until she's released her eggs. Scientists have identified the sequence of 57 amino acids that make up the PSP protein. Next, they'll synthesize the protein in the lab and test it to confirm its action. The ultimate goal: using a special insect-specific virus to transmit the male protein to corn earworm females to disrupt their mating.

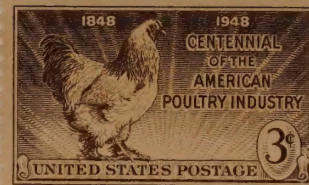
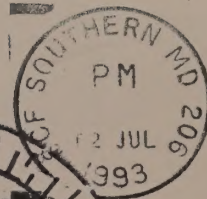
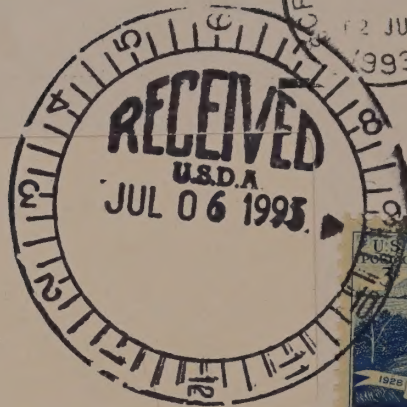
Insect Neurobiology and Hormone Lab
Ashok K. Raina

FAR-B, INC.
P. O. Box 1061
Beltsville, MD 20704-1061



Beltsville
Symposium XVIII
Pest Management

Dr. Essex E. Finney, Jr.
Associate Administrator
Room 302A
Administration Bldg.
Washington, DC 20250



This commemorative envelope and the relatively old agriculture-related stamps were made available to attendees at Symposium XVIII held last month. They were donated by Dr. William P. Wergin (Electron Microscopy Lab) who also had a personal exhibit of agricultural stamps on display during the Symposium. Other exhibitors included Dr. Al Piringer, Dr. Ronald F. Korcak, and Dr. Ashok K. Raina. A sub-station of the Beltsville Post Office was set up in Room 20 of Building 003 on May 4-5, with a special pictorial cancellation available. Our thanks to Al Piringer who handled the sale of these commemorative envelopes, which netted FAR-B in excess of \$350. We decided to use the left-overs to send out our Newsletter to selected members.



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)
P.O. Box 1061, Beltsville, MD 20704-1061

October 1993

PRESIDENT'S REPORT

We who have been or are still associated with the Beltsville Agricultural Research Center (BARC), should be excited with the recent accomplishments of the scientists, and the many improvements that are being made. Many of these are described in the Associate Director's Comments.

The following scientists have received special recognition. Barbara A. Leonhardt was selected one of the ARS Outstanding Scientists of the Year. Susan L. Meyer was selected as the ARS Outstanding Early Career Research Scientist. The three scientists, Ron Fayer, Larry Johnson, and Max Paape, were recently recommended for promotion by the Agency's supergrade RPES Panel. Seven scientists received grants from National Research Initiative (NRI) Proposals, and seven scientists are collaborating scientists on six 1993 Capacity Building Grant Awards with 1890 Institutions.

When visiting the Center you can observe many improvements in the research facilities. The concrete structure of the basement, first floor and possibly the second floor of the new ten million dollar Plant Science Building will be completed on BARC-W. On BARC-E, the Free Stalled Dairy Barn should be completed and dedicated in December. Many of the other buildings have been renovated, and are now being used.

The Director also discussed the reorganization of the Department's agricultural research activities which has been in the news. The proposed reorganization, if approved, should be beneficial to the scientists at BARC.

Plans are being made for BARC Symposia XIX, and XX. Joan Conway and William Rumpler have described the plans for the 1994 Symposium XIX to be held in May, 1994. Duane Norman and Vernon Pursel will CO-Chair the 1995 BARC Symposium entitled "Biotechnology's Role in the Genetic Improvement of Farm Animals".

On July 23, FAR-B furnished the luncheon for the invited guests at the first Integrated Pest Management (IPM) Field Day. This was a very successful event with 30 guests including representatives of eight companies and 20 public institutions. It is anticipated that the IPM Field Day may become an annual event.

On Oct 7, FAR-B furnished refreshment for the Research Leaders meeting. The Beltsville Area Office has expressed their appreciation for this type of support.

We have received a request from the National Agricultural Library (NAL) for volunteers for the Aqua Culture Information Center. Anyone interested in volunteering should contact Eileen McVey at (301) 504-5558.

I encourage each of you to visit the Beltsville Agriculture Research Center. I am sure that you will be pleasantly surprised with all the changes you will observe.

JOHN G. MOSEMAN
President

BELTSVILLE SYMPOSIUM XIX

The 1994 Beltsville Symposium is entitled, "Advances in Human Energy Metabolism: Balancing Energy Requirements and Energy Intake" and will take place Sunday, May 8th through Wednesday, May 11th 1994. The opening mixer (5/8) and Poster Session (5/10) will take place at the Holiday Inn in Beltsville. The banquet is scheduled to take place on Monday (5/9) evening at the Smithsonian's Museum of Natural History in Washington, D.C.

The 1994 Symposium committee consists of scientists from BHNRC: Joan Conway, Bill Rumpler, Jim Seale, Paul Moe, Bev Clevidence, Judy Hallfrisch, Joanne Holden and Betty Li and from ASI: Al Mitchell. The committee has obtained commitments from 27 speakers who will contribute in the following areas: Energy requirements, Energy Intake, Components of Energy Metabolism: Bridging Intake and Requirements and Energy Value of Food. The final session will be a panel discussion open to the press.

As in the past, FAR-B will contact industry and the private sector to request financial assistance for the support of the 1994 Symposium. The representative from the committee to FAR-B is Jim Seale (301-504-8127). Symposium Co-Chair are Joan Marie Conway (301-504-8977) and Bill Rumpler (301-504-8360) of the BHNRC, Energy and Protein Nutrition Laboratory, Bldg 308, Rm 215, Beltsville, MD 20705. Facsimile number is 301-504-9251.

JOAN MARIE CONWAY
WILLIAM V. RUMPLER
Co-Chairs, SYMPOSIUM XIX

ASSOCIATE DIRECTOR'S COMMENTS

The proposed reorganization of USDA was announced by Secretary Mike Espy on September 7 following the President's and Vice President's presentations on Reinventing Government. Among Mr. Espy's proposals is his call for focus on six missions to create a revitalized Department that has 30 agencies (compared to the current 43).

He has proposed enhancement of USDA's research and education programs through combination of the Agricultural Research Service, the Extension Service, the Cooperative State Research Service, and the National Agricultural Library into a new "Agricultural Research and Education Service." The Administrator of this new organization would report to the Assistant Secretary for Research and Economics. The Senate Agricultural Committee held a hearing on this proposed reorganization on September 28. A work session on legislation required to implement the reorganization was held by that Committee on October 6. Also, USDA Implementation and Policy Committees have been formed as follow-up to the reorganization proposal.

Among items that the Beltsville Area will be reporting for our State of the Area to end FY'93 are the slight reductions in our workforce. We have 340 permanent SY's, which is down five from a year ago. Major modernization projects that are already contracted, or proposed for contract if the FY'94 appropriation allows, include the following:

- East Wastewater Treatment Upgrade
- New Plant Sciences Building
- Gut and Rebuild Building 001
- Free Stall Dairy Barn
- Greenhouse Range 2 Complex
- West Wastewater Treatment Upgrade
- BARC-East Water System
- BHNRC Economic Analysis
- BARC Space Study (LPSI)
- Controlled Environment Facility
- West Electrical System Upgrade

Two Beltsville scientists received special recognition at the ARS Awards Ceremony on September 22 and at the USDA Celebration of Excellence on September 23. Dr. Barbara Leonhardt is one of the ARS Outstanding Senior Research Scientists of the Year, and Dr. Susan Fricke-Meyer is the ARS Early Career Scientist of the Year.

We are also very pleased to report that the Beltsville Area has received seven new NRI grants (CSRS) that total \$971K. We have received funding to issue a task order for the new BARC Master Plan which will be developed over the next 18 months. The first complete Boundary Survey of BARC was recently finished. A new BARC Brochure (43 pages in full color) and color map of BARC will be published in December. We look forward to another exciting year and to working closely with FAR-B to make the Beltsville Area an even better research flagship for USDA.

GORDON C. MARTEN
Associate Director, BA

A NOTE OF SADNESS

Dr. Willis A. Gortner died September 10, 1993, in the Peterson Center for Cancer Treatment of the Stanford University Hospital.

Dr. Gortner was a biochemist with degrees from the University of Minnesota and the University of Rochester. He had a long and distinguished career in education, government, and private industry. Among the positions he held were: Associate Professor of Biochemistry, School of Nutrition, Cornell University (1943-48); Head of the Department of Chemistry, The Pineapple Research Institute of Hawaii (1948-64); Director of the Human Nutrition Research Division of the Agricultural Research Service of the U.S. Department of Agriculture (1964-72); and the Executive Officer of the American Institute of Nutrition (1976-78). He was honored by his fellow professionals on numerous occasions and served often with distinction on many committees within the food science community. He had been widely published in the nutrition and biochemical sciences and had authored several books.

He is survived by his Wife, Susan, of 33 years and three children.

Dr. Paul Adrian Giang, a long-time employee at BARC died on October 1 as a result of an automobile accident near his home in Takoma Park. Dr. Giang retired in 1983 after 30 years of service at the Beltsville Agricultural Research Center, where he worked in the Pesticide Chemicals Research Branch. Dr. Giang was credited with the discovery of an enzymatic assay to quantify organophosphate pesticide content. As the field grew, he became an expert in other methods of detecting pesticides, including infrared spectroscopy. He was the author of two books and several scientific articles about pesticide detection.

A native of China, Dr. Giang came to the United States in 1928 to study at Columbia Union College in Takoma Park. After graduating there, he received a master's degree from the University of California at Berkeley and a doctorate in analytical chemistry at Georgetown University. He served in the Army in World War II. Dr. Giang was 84 at the time of his death.

VISITOR CENTER

Through the magic of video tape, visitors to the Beltsville Center can now be taken to see the dairy herd milking at any time of day. At the Beltsville milking parlor, a new exhibit has been added on the ARS dairy science program, including a video of the milking operation. The exhibit is part of the plan by the National Visitor Center to offer several informative satellite stops on tours. The plan is aimed at offering a chance for volunteers--employees or others--to give a public tour of BARC. Tours by volunteers will be different than those offered professional groups by the NVC staff.

The tour-leading volunteers will be call Road Scholars because they will have options to select the stops and sites for their groups.

In the past, most volunteers shy away from doing a full tour of the Beltsville Center because they are only comfortable talking about plants, or animals, or another side of the ARS story here. Therefore, scripts will be developed at the NVC to help the Road Scholar volunteers self train. To get the scripts started, two student interns--one funded by FAR-B--did an excellent job last summer at the NVC, organizing the appropriate information for each stop.

The summer intern student funded by FAR-B was Barbara Robinson, who could not have been better suited to working at the Visitor Center. Ms. Robinson is a cheerful and outgoing young woman. And, according to several of her teachers (who actively cooperate with USDA), she had been one of the best students ever to graduate from the science magnet program of Oxon Hill High School. Before leaving to study freshman biology at Princeton University, Ms. Robinson often expressed great appreciation that FAR-B gave her an opportunity to learn about so much on-going science while working at Beltsville.

As soon as the Road Scholar scripts are completed, FAR-B will be notified. Perhaps there are members who will enjoy telling the public what Friends of Agricultural Research at Beltsville is all about!

BELTSVILLE RESEARCH, A CONTINUING STORY

Two suspected risk factors in breast cancer-moderate alcohol consumption and exposure to estrogen hormones-have now been linked. A six-month study at ARS' Beltsville Human Nutrition Research Center was one of the first long-term, controlled-diet experiments of its kind. The equivalent of two mixed drinks a day increased estrogen levels seven to 32 percent during the menstrual cycle of 34 healthy women volunteers 21 to 40 years old. The results suggest moderate alcohol consumption may be one mechanism responsible for elevated estrogen-long implicated in breast cancer. Results may also explain why some earlier studies implicated moderate drinking as a risk factor. ARS jointly conducted the study with the National Cancer Institute. The scientists measured estrogen hormones in blood and urine samples about a week before, during, and a week after ovulation. The greatest increase in hormones was in the week of ovulation.

Lipid Nutrition Lab
Joseph Judd

Natural compounds that kill crop-damaging whiteflies have been identified as a group of sugar esters that are environmentally safe for use as insecticides. ARS scientists found the compounds on the surface of leaves of *Nicotiana gossei*, a wild relative of tobacco. The esters are produced by leaf hairs on the plant. Since the plant normally produces only a small amount of these compounds, ARS scientists plan to use classic genetic breeding to grow plants that produce greater amounts of the compounds. The scientists have applied for a patent on the compounds.

Horticultural Crops Quality Lab
J. George Buta
Florist and Nursery Crops Lab
John W. Neal, Jr.

Taxol, approved last year by the Food and Drug Administration as a drug for ovarian cancer, could be produced from Maine's yew bushes. A database developed by ARS scientists revealed that needles of the bush, *Taxus canadensis*, from Maine contain five times more taxol than found in the bark of the western yew trees, *T. brevifolia*. Currently western yews must be destroyed for their bark to extract this chemical, whereas the Maine bushes produce new needles each year. Taxol is also showing promise for the treatment of other types of cancer that cause the death of nearly 300,000 Americans yearly. As a by-product of the extraction process, energy alcohol could be produced along with several other useful chemicals.

National Germplasm Resources Lab
James Duke

Some folk remedies for diabetes appear to be based on fact rather than fiction. That's what ARS researchers are finding in studies to identify foods that may help control diabetes in lieu of drugs. They used a well known test-tube assay of insulin activity to screen extracts of 24 plants that have a reputation for antidiabetic properties. The assay measures the ability of a substance to enhance glucose oxidation in the presence of insulin. Nine of the 24 plants boosted insulin activity from two- to 4.5-fold. The common weed, loosestrife (*Lythrum salicaria*), produced the biggest increase. Others were bearberry (*Arctostaphylos uva-ursi*); hops (*Humulus lupulus*); lavender (*Lavandula stoechas*); oregano (*Origanum vulgare*); sage (*Salvia officinalis*); dandelion (*Taraxacum officinale*); sweet bay (*Laurus nobilis*); and birch (*Betula lenta*). These substances are generally prepared as teas or tinctures. Sage and oregano are common herbs used in cooking. Hops and lavender are food additives generally recognized as safe. Earlier assays found several spices, such as cinnamon and tumeric, to be effective. The researchers ultimately hope to test the most effective compounds in human studies.

Vitamin and Mineral Nutrition Lab
Richard A. Anderson
National Germplasm Resources Lab
James A. Duke



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)
P.O. Box 1061, Beltsville, MD 20704-1061

February 1994

ANNUAL MEETING MARCH 8
2 P.M. VISITOR CENTER
REFRESHMENTS FOLLOWING

PRESIDENT'S REPORT

The 9th annual meeting of FAR-B will be on March 8, 1994. I urge each of you to attend that meeting. By attending you will have the opportunity to learn about the accomplishments at the BARC. Our main speaker will be BARC Director, Dr. K. Darwin Murrell. He will describe the recognition received by scientists for their outstanding research, progress in building renovation and construction, and other activities. (The construction of the new Plant Science Institute building is progressing rapidly). Plans for the coming year also will be described.

The activities in which FAR-B has been involved are reviewed. We will welcome your advice regarding future plans. All but one of our present officers and board members have more than one year to serve. They are President - John Moseman; Vice-President - Frank Longen; Treasurer - Bill Bailey; Board Members, George Irving, Bill Hollis, Pat Jackson, and Morton Beroza. Board Member, Gus Hanson, who has completed a 3-year term, has agreed to serve as a Board Member for another 3 years if elected.

The XIX Annual BARC International Symposium entitled "Advances in Human Energy Metabolism: Balancing Energy Requirements and Energy Intake", is to be held on May 8-11, 1994. FAR-B is co-sponsoring that symposium. Plans are being made for the XX Annual BARC International Symposium.

Please not only plan to attend our annual meeting on March 8, but also bring a friend. We are anxious for you to learn about our activities, and plans for the future.

JOHN G. MOSEMAN
President

BELTSVILLE SYMPOSIUM XIX

The 1994 Beltsville Symposium, "Advances in Human Energy Metabolism: Balancing Energy Requirements and Energy Intake" is fast approaching. All of the podium presenters have received the information for preparation of their manuscripts for publication. The brochure has been mailed to all members of the American Institute of Nutrition and members of The American Dietetic

Association in close proximity to Beltsville, (totalling approximately 6,500 members). Brochures will be sent to other ARS labs which might have an interest in the Symposium. We are planning to accommodate up to 100 poster papers.

The registration fee for FAR-B retired members will be waived for the technical program but the attendees must register for the Symposium. Banquet tickets will be available to FAR-B retired members at cost. Arrangements for a Beltsville Station of the Post Office are being made by Bill Wergin; FAR-B will benefit from the sales of specially post-marked envelopes.

We wish to gratefully acknowledge the financial support for the Symposium that has been received thus far. A total of \$5,125 has been donated from industry.

We hope that many FAR-B members will attend the Symposium. For a copy of the brochure, please contact Virginia Hupfer at 301-504-6108.

JOAN MARIE CONWAY
WILLIAM V. RUMPLER
Co-Chairs, Symposium XIX

ASSOCIATE DIRECTOR'S COMMENTS

Two pending events continue to attract the interest of many BARC employees. These are the potential enactment by Congress of a Recision Bill that has passed the House of Representatives and is due for Senate action by mid-February, and the proposed reorganization of USDA. Whether the reorganization will become reality early this year as planned, be delayed as some congressmen have suggested until late summer, or occur at all in its current proposed form, remains a subject of keen interest.

On December 10, 1993, ARS Acting Administrator, Essex Finney, distributed an updated package of charts, tables, and narratives on the proposed USDA reorganization, especially as it relates to ARS and the new Agricultural Research and Education Service (ARES) structure. He stressed that this information, which had been released by the Congressional Committees, did not represent an official USDA announcement of the reorganization plan and that the plan is subject to change.

The fact that proposed ARS organizational changes are limited to Headquarters units above the Area Office level is perhaps the most important point to our Beltsville employees.

A major proposed change is that central planning staffs of three agencies (including the ARS National Program Staff) are to be consolidated into a single integrated staff for National Planning

and Coordination headed by a Deputy Administrator who is to report directly to the ARES Administrator. The other two current agencies whose program staffs are to join ARS in this consolidated planning and coordination are the Extension Service and the Cooperative States Research Service. The latter has been responsible for the National Research Initiative Competitive Grants Program and distribution and oversight of Federal formula research funds for the Land Grant University Experiment Stations (Hatch Act funds).

Major opposition to this proposed consolidation has been voiced by some universities and agricultural experiment stations. They are concerned that those of us in "Federal Research" will be too dominant, and that they may lose their flexibility in use of federally appropriated funds.

The immediate impact of the proposed reorganization on the Beltsville Area will be minimal. Perhaps of greatest interest to our scientific workforce will be the listing of proposed Associate Deputy Administrators who will report to the ARES Deputy Administrator of the Planning and Coordination Staff:

- o Product Use, Marketing and Economics
- o Natural Resources and Environment
- o Animal Production and Protection
- o Plant Production and Protection
- o Food Safety and Nutrition
- o Family, Youth and Communities

This listing certainly accommodates all of the Beltsville Area research program.

If the House approved version of the Recision Bill remains intact, most of the Beltsville Area's management units will remain in good financial condition. We will continue to seek solutions for the few that are not adequately supported. Special attention will be given to actions required to ensure that our high priority research programs are protected.

Our modernization program continues to move forward as you can readily observe by traveling around BARC-East, BARC-West, or the U.S. National Arboretum. The architect contracted to design the planned Controlled Environment Facility (CEF) that will house most of Beltsville's plant growth chambers recently submitted the 15% plan. We selected a design that will blend nicely with the new Plant Science Building and the Range 2 Greenhouses that will border the CEF. The old Conservatory (also known as the "Palm House") will soon be demolished to allow future construction of the CEF. Funding for construction remains to be obtained. Water system and electrical system upgrades, as well as new sewage treatment plants, are also critical parts of modernization.

A new BARC Master Plan has been initiated; we expect the plan to be

completed early in 1996. It will include allowance of land use for construction of a new USDA Office Complex for which funding is being requested by USDA in Fiscal Year 1995. The USDA Complex is proposed to provide 700,000 square feet of office space located on 115 acres off Sunnyside Road adjacent to the METRO Greenline turnaround and service yard. It should house between 3,500 and 5,000 people. We should know sometime next year whether the project will go forward. An Environmental Impact Statement is being prepared, and a public hearing will be held on January 31.

Also in planning phases is a new Transgenic Animal Building on BARC-East to be shared with the University of Maryland. Funding of \$3 million has been identified by the University for this 9,000 square feet building. Design of the building should be completed in June 1994, with construction to begin in early 1996. We anticipate another successful year for the Beltsville Area, and we look forward to working closely with you -- our valued friends -- during the coming year.

GORDON C. MARTEN
Associate Director, BA

DUES RENEWAL TIME

Once again it is time to renew your membership in FAR-B. Our membership year starts April 1 and runs through March 31, 1995. We are grateful for the continued support of so many of our charter members and of those who joined our ranks in more recent years. But for one reason or another our total membership has declined slightly in the past year or two. We are now a slightly over 100 members in three classes of membership- Patrons, Personal Members, and Associate Members. If you know of some fellow retirees or co-workers who are not FAR-B members we would like for you to encourage them to join our ranks. Our dues for the upcoming membership year remain the same. That is: \$100. for patrons; \$20. for Personal Members; and \$10. for Associate Members (current employees). Please send your dues payment to: Friends of Agricultural Research - Beltsville, Inc., P. O. Box 1061, Beltsville, MD 20704-1061. Your canceled check will serve as your receipt. Keep in mind that your contribution is tax deductible.

The National Visitor Center Wants FAR-B Members As Road Scholars

It's now easier for volunteers to learn how to give a public tour of the Beltsville Center. Until now, those who volunteer at the ARS National Visitor Center have worked the reception desk or helped organize information. However, they have shied away from giving tours.

Steve Berberich of the ARS Information Staff has gotten Dr. Murrell's OK to proceed with volunteers he calls "Road Scholars." Steve and his staff at the Visitor Center have a plan that he says overcomes two things that give volunteers the jitters about tours. "Most people know our information specialists give a first class, stimulating tour. So, volunteers may think they would have to do a comprehensive job right away. But the Road Scholar plan is actually aimed at an easier kind of tour--one for the general public. We have not been doing a lot of those yet. Our staff handles mostly specialized groups from science or agricultural industries."

Second, he says that most volunteers shy away from conducting a full tour of the Beltsville Center because they feel confident only when talking about one area of research--plants, animals, environmental science or another side of BARC. The remedy, Steve says, are brief scripts that have been written for prompting volunteers. Last summer, to get the scripts started, two student interns--one funded by FAR-B--did an excellent job organizing the appropriate information, he says.

The tour-leading volunteers will be called Road Scholars because they can choose to use a few of about 12 different tours stops. The scripts match the stops. Information folders for each stop will give volunteers further reading. As a Road Scholar, volunteers will first ride along while a Visitor Center staff member gives a public tour.

As with other volunteers, employees will have their supervisor fill out a form. Only about two hours will be volunteered at any one time. It could be used as credit for outreach activities or for training. For FAR-B members, they will also enjoy telling the public what the Friends of Agricultural Research at Beltsville is all about.

"I think people will enjoy volunteering under this system. We have really tried to make it flexible. We'll work closely and patiently with volunteers. For some people, talking with the public is a little frightening. For others, it's invigorating", Steve says.

The Visitor Center's Marge Fellows will maintain a list of Road Scholar volunteers and their interests. To put your name on the Road Scholar list, call Marge or Steve at 504-9483. Thank you.

The Aquaculture Information Center

The Aquaculture Information Center at the National Agricultural Library is currently seeking volunteers to assist with the myriad of activities in providing information to the aquaculture industry. Our clients include Congressional staff, researchers, university staff and students, USDA employees, and aquafarmers in the field.

Activities and support needed include processing correspondence, providing phone support, general typing, compiling information packets, and maintaining inventories of our publications. The Center is also willing to train volunteers who want to learn CD-Rom search and file development in the subject area of aquaculture. We also encourage volunteers with strong scientific backgrounds to compile bibliographies in specific subject areas and provide initial reference support. The Center also needs computer support in maintaining databases and loading software updates. There are a broad range of activities and the volunteer can elect to provide service in one or several areas. Volunteers are asked to make a specific and regular time commitment to the Center. Past volunteers have provided support for as little as two hours weekly and as long as 15 hours weekly. All support is welcome. If you are interested, please contact Eileen McVey, Acting Coordinator, at (301) 504-5558.

BELTSVILLE RESEARCH, A CONTINUING STORY

Peanuts from Mexico's highlands could give a "nuttier" taste to commercial peanut lines that are bred for snack nuts and peanut butter. ARS scientists searched the Mexican states of Puebla and Guanajuato for unique peanut types--especially the *hirsuta* variety that grows on hairy plants. *Hirsutas* are prized in Mexico for the intensity of their flavor. As a result, these "hairy" peanuts have survived in Mexico despite certain disadvantages when compared to commercial varieties: They mature very late, offer less yield and must be hand-harvested. Some of the 12 *hirsuta* types collected on the trip may turn out to mature earlier than previously known *hirsutas*. Now that the *hirsutas* fill in some of the gaps in the available genetic diversity of peanuts, plant breeders can draw on them to improve commercial peanut lines.

National Germplasm Resources Laboratory
David E. Williams

A new screening technique helps pinpoint snap, pinto and other bean varieties for gene-combinations that confer resistance to two of the worst leaf diseases. The diseases--caused by the bean rust fungus and a virus--often reduce crop yields up to 30 percent and can wipe out an entire crop. Currently, no single commercial bean variety resists all races of rust fungus and strains of bean common mosaic virus (BCMV) -- including newer strains occurring in Idaho and possibly other bean-growing states. To find resistant lines, ARS researchers inoculated bean plants first with several races of the fungus, followed by certain strains of the virus. They then saved seeds from the plants that stayed healthy to pinpoint the genes conferring resistance. Unlike standard methods, the new technique can rapidly identify plants with a combination of rust-resistance, and "I gene" that protects beans from BCMV, and two other genes that protect against black root. Researchers may

develop bean germplasm lines with a combination of the genes for bean breeders and growers.

Molecular Plant Pathology and Biology
J. Rennie Stavely.

Volunteers in the first human study of ARS-developed Oatrim not only had a drop in cholesterol, they also lost weight, averaging 4.5 pounds. That happened even though their calorie intake increased during the study in an effort to stem weight loss. Also, their glucose tolerance--the ability to process sugar from a meal--improved, reducing the risk of diabetes. About one-half cup of Oatrim a day added to a variety of foods significantly reduced artery-clogging LDL cholesterol in the 24 volunteers, who were selected because of their mildly elevated cholesterol. But it did not lower the beneficial HDL cholesterol. Oatrim consists of amyloextrin--shortened fragments of starch--and beta glucans, the principal fiber in oats and barley that gives these grains their cholesterol-lowering property. ARS has licensed Oatrim to a joint venture between ConAgra and A.E. Staley and to a partnership between Quaker Oats and Rhone Poulenc. ConAgra puts Oatrim in several of its Healthy Choice products. And the Quaker Oats/Rhone Poulenc partnership expects to have several products containing Oatrim out this year.

Beltsville Human Nutrition Research Center
Judith Hallfrisch/Kay Behall

Testing dairy cows for mastitis can be done more efficiently with a modified laboratory device called a flow cytometer. Mastitis, an infection of the udder, costs U.S. dairy farmers \$2 billion annually in treatment and lost milk production. To test for mastitis, dairies must count the number of white blood cells in milk. When a cow's udder becomes infected, white blood cells called neutrophils rush to the infection site to attack the invading bacteria. Normal milk usually has some white blood cells and other cells from the lining of the udder. However, government regulations set a 750,000/ml limit on these somatic cells. Here is where the ARS-modified flow cytometer shines: It can tell the difference between cell types. For example, a flow cytometer can easily detect subclinical mastitis, a condition often missed because cell counts are low and a routine cell count indicates nothing is wrong. But if the cells are mostly neutrophils, an infection is usually present. Subclinical mastitis is insidious because it often causes a practically unnoticeable drop in milk production per cow. If a whole herd becomes infected, milk production can drop five to 10 or even 20 percent--meaning substantial losses for farmers.

Milk Secretion and Mastitis Lab
Robert H. Miller/Max J. Paape



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)
P.O. Box 1061, Beltsville, MD 20704-1061

October 1994

PRESIDENT'S REPORT

Summer is over, schools are open, and we can look forward to the beautiful fall weather and colors. FAR-B has continued being involved with activities at BARC

The Beltsville Symposium XIX "Advances in Human Energy Metabolism: Balancing Energy Requirements and Energy Intake" on May 8-11, which FAR-B co-sponsored, was a success. Many representatives from the news media, and outstanding scientists attended that symposium. Walter Mertz was presented the FAR-B Distinguished Scientist Award for his contributions to Human Nutrition. The award was presented at the banquet, which was in the National Museum of Natural History.

Plans are being made for Beltsville Symposium XX entitled "Biotechnology's Role in the Genetic Improvement of Farm Animals". That symposium will be on May 14-17, 1995. Duane Norman and Vernon Pursel are the Co-Chairpersons. Many outstanding individuals have already agreed to be speakers.

On July 20, FAR-B furnished the luncheon for the Sustainable Agriculture and Integrated Pest Management Field Day. More than 100 individuals from States Agricultural Agencies and Companies attended. The hi-light of the field day was the visit to field experiments in which they demonstrated the application of many years of research conducted in laboratories at Beltsville.

FAR-B financed a student apprentice this summer at the ARS, National Visitor Center, (NVC) at Beltsville. That student participated in programs of the NVC, and became familiar with public affairs in the Food and Farm Sciences. Some FAR-B members have been participating in the NVC Road Scholar Program in which the scholars are trained, and then help as guides in all or part of tours of BARC. If you think you may be interested in being a tour guide, you should contact Stephen Berberich. His telephone number is 504-8220.

BARC-West will soon have its first new research building in over 20 years. Many of the existing buildings have been renovated in recent years, but no new buildings have been built. On October 18, 1994, the new Plant Sciences Building will be dedicated. Most of the Horticultural Research Laboratories will be moved to that State of the Art Research Facility. FAR-B has been asked to participate in that dedication ceremony.

Letters were sent to the U.S. Senators and Representatives from

Maryland encouraging them to support the FY 95 funding for the modernization at BARC. We have received acknowledgements of our letters from Senators Mikulski, and Sarbanes informing us that the appropriation bill passed by the Senate on July 20 included \$5 million for renovation and repair of facilities at BARC.

FAR-B contributes much to the success of not only the annual Beltsville Symposium, but to many other activities at BARC. A brochure describing our purpose and activities has been printed. If you have friends who were employed at BARC and are not members of FAR-B, please encourage them to become members. We need them. Copies of the brochure can be obtained by contacting Ginger Hupfer in the FAR-B office. Her Telephone number is (301) 504-6108.

JOHN G. MOSEMAN
President

BELTSVILLE SYMPOSIUM XIX

The 1994 Beltsville Symposium entitled, "Advances in Human Energy Metabolism: Balancing Energy Requirements and Energy Intake" was held May 8 - 11, 1994 in the BARC auditorium in Bldg. 003. The symposium was well attended with 162 participants, including scientists, nutritionists, and industry. The 2 1/2 day program consisted of 27 speakers and a poster session with 25 presentations. The banquet was attended by 140 participants. The FAR-B distinguished scientist award was presented to Dr. Walter Mertz, by Dr. George Irving, in recognition of his impact on USDA-ARS Human Nutrition. Publication of the symposium proceedings in the American Journal of Clinical Nutrition is anticipated in the spring of 1995. The symposium committee raised over \$11,000 in contributions from corporate sponsors and \$23,000 from the participants. Total expenditures, including publication of the proceedings equalled total revenues (approximately \$70,000). With the BARC contribution of \$36,000 revenue equaled expenses.

JOAN MARIE CONWAY
WILLIAM V. RUMPLER
Co-Chairs, SYMPOSIUM XIX

BELTSVILLE SYMPOSIUM XX

The 1995 Beltsville Symposium will be entitled, "Biotechnology's Role in the Genetic Improvement of Farm Animals", and will begin on May 14th and continue until noon on Wednesday May 17th. The opening mixer on May 14th and poster sessions on May 15th and 16th will be held at the Holiday Inn in Beltsville, while the symposium presentations will be in the Auditorium of Building 003.

The 1995 Symposium Program Committee consists of Co-chairs, Duane Norman and Vernon Pursel, Robert Miller, Editor, Murray Bakst, Joan Lunney, Caird Rexroad and Morton Beroza. The committee has

obtained commitments from 22 speakers, six of whom are from foreign countries. The topics of the five half-day sessions will be: Genetic Diversity, Mapping Technologies, Embryo and Gamete Technology, Acceptance of Biotechnology: Political and Social Issues, and Marker Applications.

H. DUANE NORMAN
VERNON PURSEL
Co-Chairs, Symposium XX

DIRECTOR'S COMMENTS

Beltsville has been blessed with the news that Dr. Larry Johnson, Research Leader of the Germplasm and Gamete Physiology Laboratory, Livestock and Poultry Sciences Institute, is the 1994 Winner of the Alexander von Humboldt Award for agricultural research. This prestigious award is being given in recognition of Dr. Johnson's outstanding achievement in reproductive physiology, particularly for his work on semen preservation and the sex selection of sperm. In addition, Dr. Johnson was selected for the 1994 ARS Distinguished Scientist Award. This is truly a banner year for Larry!

The Area's 1994 selection for the Early Career Scientist is Dr. Eric Hoberg of the Biosystematics and National Parasite Collection Unit, also of the Livestock and Poultry Sciences Institute. Dr. Hoberg has also been selected for the 1994 ARS Distinguished Early Career Scientist Award. In the very few years he has been with ARS, Dr. Hoberg has established himself as one of the leading authorities on the phylogenetics and taxonomy of gastrointestinal nematodes of parasites.

The new Plant Sciences Building will be dedicated on October 18, 1994, at 1 p.m. All FAR-B members are welcome to this important event which will house the Vegetable Laboratory, the Fruit Laboratory, and the Floral and Nursery Plants Research Unit, all convenient to the rebuilt Range 2 Greenhouses.

All of us at Beltsville are anxiously watching the FY-95 appropriation, expecting a lean budget for next year. We will be indeed fortunate to receive any adjustments for inflation and pay increases; additional funds for Modernization will be especially problematical.

Finally, our 2nd Annual Sustainable Agriculture-IPM Research Field Day was highly successful. This year's event was held July 20 and we had a good turnout for industry, government, and academia. It was an important opportunity to exhibit BARC's important research effort in this arena, and we greatly appreciate the support of FAR-B in this undertaking.

K. DARWIN MURRELL
Director, BA

PHILIP L. BREAKIRON

It is with sincere regret that we inform our members of the death of Philip L. Breakiron, a long-time ARS employee and a member of FAR-B since 1987. Phil passed away on April 7, 1994, at his home in Alexandria after having suffered a heart attack.

Phil worked in the former Transportation and Facilities Research Division and at the time of his retirement in 1980 was chief of the Transportation and Packaging Laboratory. His career with the USDA spanned 36 years and he was the author of about 50 research papers. After his retirement, he worked at Food Source Corp., a transportation company, for two years as Vice President of Research. Phil was a native of West Newton, PA and a graduate of Pennsylvania State University. Before moving to the Washington area in 1944 he worked as an inspector for the Pittsburgh Railroad. He was a Charter Member and President of the National Institute of Packaging and Handling Engineers.

ARS NATIONAL VISITOR CENTER (NVC)

Here is a selection of recent distinguished visiting groups:

The Defense Intelligence Agency, DOD; Independent Bakers Association; FAR-B Board of Directors; International Symposium on Artificial Insemination of Poultry; Risk Assessment (transgenic field testing) Symposium, University of Maryland; Agricultural Research Institute's Teacher Workshop; Asgrow Seed Co.; National Council of Farmer Cooperatives; International Protein, Inc.; and the American Chemical Society.

Perhaps our best recent activity was contributing to a meeting Sept. 16-18, "The Role of Scientific Societies in K-16 Food, Fiber and Environmental Science Education," at the Greenbelt Marriott Hotel.

We had the privilege of helping an all-star line up of scientific societies develop strategies on agricultural education. Our part began when agronomy professor Vernon B. Cardwell of the University of Minnesota introduced himself following my talk in June at the National Ag-In-The-Classroom Conference of State Coordinators in Kansas City. I had been summarizing results of our E-mail survey of ARS employees' activities with K-12 schools across the country. Dr. Cardwell said that he was in "complete agreement" that scientific societies have the best potential for developing educational materials based on ARS research and role models, instead of expecting research agencies to do or fund them. He said he was planning a meeting of key educators and society reps to cultivate the idea. He asked if Beltsville would be a feasible venue and if we could help.

On September 15, the NVC provided a 4-hour program for the participants, thanks to Road Scholars and scientists who stayed late on Friday afternoon. Dr. Rosannah Taylor (Florist and Nursery Crops Lab.) presented slides and microscope stations on low-cost plant tissue printing to teach botanical anatomy and pathology. Dr. Beverly Clevidence (Diet and Human Performance Lab.) gave a summary and tour of human diet studies at the Beltsville Human Nutrition Research Center. I provided an inside look at NVC resources for teachers. Donald Comis (ARS Information Staff) gave the group a tour of sustainable agriculture research, and Avis Bennett (Bioscience Service Center) was our co-tour guide.

Dr. Cardwell expressed gratitude to Dr. Dean Plowman and Dr. Richard Parry of ARS for providing a special grant for travel expenses for the educators. Represented were school systems of Connecticut, Minnesota, New York, Pennsylvania, Ohio, Maryland, the District of Columbia, Michigan, Georgia, New Hampshire, Oklahoma, California, North Carolina, Nebraska, Iowa, Maine, and Wisconsin.

Societies represented were the American Fisheries Society, American Veterinary Medical Association, American Society of Agronomy, Poultry Science Association, Federation of American Societies for Food Animal Sciences, Council for Agricultural Science and Technology, American Institute of Biological Sciences, National Institute of Youth Sciences, Soil Science Society of America, American Society of Plant Physiologists, Entomological Society of America, American Association for Agricultural Education, American Society of Animal Science, American Society of Agricultural Engineers, American Society for Microbiology, American Chemical Society, American Association for the Advancement of Science--Project 2061, National Science Education Standards, National Institute for Youth Sciences, and National Science Foundation.

Here is a selected list of recent foreign guests:

- * U.S. Information Agency, USIA: 10 senior agricultural trade leaders from Austria, Belgium, Denmark, France, Germany, Lithuania, Netherlands, Ukraine and the United Kingdom.
- * Asia Systems Media (private): 6 senior research engineers from Jiangsu Province, China.
- * World Bank (Wilson Peiris, host): scientists from Sri Lanka.
- * NTL Institute (private): USDA management course for senior agriculturists from Nigeria, Palestine, Israel, and Thailand.
- * Embassy of the Philippines (Bernardo Mitra, Ag. Attache, host): Philippine Senator Santanina Rasul and delegation.

- * Foreign Agriculture Service/International Cooperation and Development: Agriculturalists from Kazakhstan.
- * FAS/Ag. Trade Office: 10 person delegation from the China State Bureau of Technical Supervision.
- * Meridian International Center (private; contract with USIA): Tai Chen, General Director, Taiwan Livestock Research Institute.
- * Agricultural Cooperative Development International, ACDI (private): Jahan Zaeb, Pakistan Dairies Ltd., Director.
- * USDA Cochran Fellowship Program: Collective Farm Directors (extension workers) from Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan, Armenia and Russia.
- * Arthur D. Little International, Inc. (private): delegation of fiber/flax industry representative from Prague, Czech Republic.
- * ACDI (private): delegation of female Egyptian farmers.

BELTSVILLE RESEARCH, A CONTINUING STORY

A family history of diabetes may make it more important for women with low estrogen levels, like after menopause, to avoid consuming too much refined sugar than it is for men. A study of male and female rats--bred to become obese and develop diabetes--found that the females produce more of certain steroid hormones than males. These hormones, called glucocorticosteroids, hamper insulin from doing its job. A high-sugar diet increased production of the steroids even more. Estrogen blocks the insulin-depressing effect of the glucocorticosteroids. So the female rats actually had lower blood sugar levels than the males because they were protected by their high estrogen levels. But when estrogen levels drop as they do in women during and after menopause, higher levels of these steroid hormones may contribute to the onset of diabetes.

Beltsville Human Nutrition Research Center
Paddy Wiensenfeld

White meat in poultry, relatively low in fat, could be made leaner still. Dark meat's higher fat content also could be lower, now that a new, reliable ARS test can measure a muscle growth-promoting hormone in poultry. Called insulin-like growth factor-1 (IGF-1), the hormone is responsible for muscle growth in mammals and poultry, but differs somewhat between the two. Until now, a test for the mammal form of IGF-1 was the only one available. Accurate measurement of the poultry form of IGF-1 will help researchers determine which birds put on more muscle and thus make leaner meat. Farmers and consumers would benefit from reducing the fat chickens add under the skin, between the muscles and in the abdomen. Abdominal fat mass is discarded at

processing, but costs poultry farmers an estimated \$500 million annually in extra feed.

Non-Ruminant Animal Nutrition Lab
John P. McMurtry

Not all thrips are insect pests of flowers, ornamentals and agricultural crops. Some are beneficial as predators of mites and insects and as pollinators of crops. ARS and University of Florida research showed for the first time how thrips pollinate West Indies mahogany tree flowers in Florida. These hardwood trees are grown in the tropics for their valuable wood or as ornamentals along road sides. Five species of thrips were the only insects found in 12 to 59 percent of flowers collected from seven sites located many miles apart. Their bodies were coated with pollen providing the first evidence that thrips were involved in cross pollinating these trees. Further studies are needed to find out how effective and important these insects are as pollinators. This information will be used by botanists and horticulturists who work on breeding for improvement of mahoganies and other U.S. crops. It will also aid scientists working on thrips biology as a means of strengthening pest management systems.

Systematic Entomology Lab
Sueo Nakahara

Young women drinking an ounce of alcohol a day for three months increased blood levels of beta carotene and alpha carotene--both vitamin A precursors--but reduced levels of another carotenoid, lutein. That's the finding from a six month study of 18 healthy, non-smoking young women. They had no alcohol for the other three months. This is one in a series of collaborative studies between ARS and the National Cancer Institute that attempt to distinguish between the effects of alcohol and smoking on blood levels of carotenoids. Based on epidemiological studies, higher levels of beta carotene and related carotenoids in the blood are associated with lower incidence of lung and stomach cancers, the two cancers most linked to smoking and drinking. But the fact that smokers usually drink alcohol and drinkers often smoke muddies the picture. So researchers want to know how each habit affects carotenoid levels independently in order to better advise the public on how to reduce risk of certain cancers. Future studies will look at smoking independently and combined with alcohol

Beltsville Human Nutrition Research Center
Gary Beecher
National Cancer Institute
Michele Forman



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)
P.O. Box 1061, Beltsville, MD 20704-1061

January 1995

ANNUAL MEETING MARCH 14
2 PM VISITOR CENTER THEATER ROOM
REFRESHMENTS FOLLOWING

PRESIDENT'S REPORT

The holidays are over, and we are beginning a period of paying bills and hoping we do not have too much cold and unpleasant weather. FAR-B has been very much involved in its mission of supporting the research and education at BARC.

We have been cooperating closely with the Committee responsible for organizing Beltsville Symposium XX, entitled *Biotechnology's Role in the Genetic Improvement of Farm Animals* to be held May 14-17, 1995. They have arranged for the printing, and we have assisted in the distribution to over 6,000 individuals of the brochure detailing the Symposium. We also have been assisting them in completing the local arrangements.

Plans are being initiated for Symposium XXI. The tentative title is *Biological Research Resources, Who Owns What?*. The Symposium will be held May 20-23, 1996. Dr. Amy Rossman, Systematic Botany and Mycology Lab, who is Co-Chairperson for the symposium, is organizing committees and developing the program.

The first new research building at BARC in over 20 years was dedicated on October 18, 1994. The building has been named the Horticultural Sciences Building. The three Horticultural Laboratories; Fruit, Vegetable and Floral and Nursery Plants, which are now in Building 004, will move into that building in late March or early April. We have been informed that the design has been completed for the Controlled Environment Facility which will be located between the Horticultural Sciences Building and the now being renovated Range 2 greenhouses. You should visit BARC-W. You will notice that many changes are occurring. FAR-B has agreed to supply equipment for the Conference Room in the new building. That room will be used by all scientists at BARC.

FAR-B is continuing to cooperate with the National Visitor Center, which is located in the log lodge on BARC-E. The Center publicizes the research conducted by scientists in ARS and at BARC by the displays in the Lodge, and by giving guided tours of the Center to many International Scientists, school children, and other groups interested in agricultural research.

The 10th annual meeting of FAR-B will be in the Log Lodge on March 14. I hope that you will attend that meeting. We will describe how FAR-B is involved in supporting the research and education at BARC. BARC Director, Dr. K. Darwin Murrell, is being asked to discuss the awards and other recognition received by scientists at BARC, current plans for improving the research facilities, and other changes at the Center. New members of the Board of Directors will be elected at that meeting.

Plan to attend the annual meeting of FAR-B on March 14, and bring a friend. If you have not seen the new brochure describing FAR-B and its objectives you may obtain one by writing or calling Mrs. Virginia Hupfer, Rm. 105B, Bldg. 263, BARC-East, Beltsville, MD 20705. Her telephone number is (301) 504-6108.

JOHN G. MOSEMAN
President

BELTSVILLE SYMPOSIUM XX

Plans for Beltsville Symposium, *Biotechnology's Role in the Genetic Improvement of Farm Animals* are progressing smoothly. The symposium will be held in the BARC-W Auditorium, Building 003, May 14-17, 1995. Twenty-seven internationally known specialists will present topics in sessions, *Genetic Diversity, Mapping Technologies, Embryo & Gamete Technology, Acceptance of Biotechnology: Political & Social Issues, and Marker Application*. The oral presentations will be published in book form by the American Dairy Science Association. Additionally, there will be poster presentations having to do with both basic and applied research with biotechnology of livestock. Keynote speaker will be Dr. Stephen O'Brien from the Cancer Research and Development Center in Frederick, Maryland.

The registration fee for FAR-B retired members will be waived for the technical program but the attendees must register for the Symposium. The two poster session luncheons and evening socials will be open to retired FAR-B members at cost. Arrangements for a Beltsville Station of the Post Office are being made by Bill Wergin; FAR-B will benefit from the sales of specially post-marked envelopes.

We hope that many FAR-B members will attend the Symposium. For a copy of the symposium brochure, please contact Ginger Hupfer at (301) 504-6108.

H. DUANE NORMAN
VERNON PURSEL
Co-Chairs, Symposium XX

DIRECTOR'S COMMENTS

At a special Senior Executive Service Conference called by former Secretary Mike Espy in Washington, D.C. in mid-December, we met the new Under Secretary designate for Research, Education, and Extension, Dr. Karl Stauber. Dr. Stauber has a Ph.D. in public policy, and he is quite concerned about the development and well-being of small farms and rural communities. When Dr. Stauber and his staff subsequently visited Beltsville on January 5 and 13, we emphasized our excellent research in sustainable agriculture, biological control of pests, and food safety and nutrition.

Four senior BARC scientists retired on January 3, 1995: Philip Kearney, Director of the Natural Resources Institute; James Svoboda, Research Leader of the Insect Neurobiology and Hormone Laboratory; Richard Sayre, chemist in the Nematology Laboratory; and Francis Uecker, botanist in the Systemic Botany and Mycology Laboratory. We were saddened to hear of Dr. Uecker's death from brain cancer in mid January. We are grateful for the substantial contributions made by these scientists over the last 30 years or more.

Dr. Donald Bills has become the new Director of the Natural Resources Institute, and we closed out the Product Quality and Development Institute in order to reduce administrative costs. The Instrumentation and Sensing Laboratory and Pesticides Research Staff have gone with Dr. Bills to the Natural Resources Institute. The Horticultural Crops Quality Laboratory was placed in the Plant Sciences Institute, and the Meat Science Research Laboratory was placed in the Livestock and Poultry Sciences Institute. The former Family Economics Research Group has left ARS, along with the Nutrition Education staff of the former Human Nutrition Information Service to become members of the Food, Nutrition, and Consumer Services headed by Undersecretary Ellen Haas.

Budget cut threats are being carefully monitored--we won't know the final outcome until next summer or fall, even though any cuts proposed in the President's budget will be revealed the second week of February. At best, we can plan on a flat budget or gradually declining budget for the next several years.

However, we will do our best to maintain our high priority research.

We also continue to move forward in planning BARC's modernization. The Controlled Environmental Facility (to be located between the new Horticultural Sciences Building and the new Range 2 greenhouses) will be at the 100% design stage by about March 1--at this time, it is still included in the President's budget for FY 1996. Gutting and rebuilding of Building 001 is in progress and on schedule.

Whereas, the proposed USDA Office Complex is not part of BARC's modernization, it has been located in a non-agriculturally valuable site in keeping with our new Master Planning process. Two buildings (each two stories) will be built near the Metro Green Line Service yard south of Sunnyside Avenue to hold 1,500 USDA employees who are now scattered throughout the Metropolitan Area. Responses from EPA and from the public after announcement in the Federal Register are required before the project becomes officially cleared. An early spring groundbreaking and a December 1996 completion are anticipated.

We have appointed a 7-member ad hoc committee (including 3 FAR-B Board members) to consider potential long-term strategies for FAR-B. Dr. Thomas Sexton, Director of the Livestock and Poultry Sciences Institute, has agreed to chair this committee, which will receive its charge from Dr. Murrell at its first meeting sometime in February. We look forward to even greater involvement by FAR-B in the total BARC program in 1995.

GORDON C. MARTEN
Associate Director, BA

ARS NATIONAL VISITOR CENTER (NVC)

ARS National Visitor Center, Highlights of 4th Quarter, 1994

Foreign guests last fall came from 19 different countries. Among them were:

- * Hisashi Ishida, First Secretary of Agriculture from Japan;
- * Ahmed Al-Masoum, Executive Director of International Agricultural and Environmental Research at the University of the United Arab Emirates;
- * Ambassador Tatanene Manata of Zaire;
- * Ten "high-level" agribusiness executives in Russia's Rostov region. Anatoley Grigorievich Maniko, Director General of a bread and baked goods factory led the delegation;
- * The Amerasian Travel Agency brought a diverse group of leaders from the Shaoguan area of Guangdong Province in China;
- * Exploring joint R & D ventures, a delegation from the Anhui Science and Technology Commission of China was led by Vice Governor Zhang Run Xia, founder of the successful Hefei High Technology Zone;
- * The Farmer-to-Farmer Program of the Agricultural Cooperative Development International brought a delegation of prominent Egyptian Farmers;
- * Workers and officials from collective farms in Russia's Rostovugol Association;
- * Pilarczyk Jozef-Jerzy, an Undersecretary of State for animal and plant production led a delegation of high-level officials from the Polish government.

Professionals from science and agriculture included:

- * Ten animal facility caretakers from the National Institutes of Health;

- * University of Maryland's Turf and Seeds Conference;
- * U.S. Naval Academy's Dairy Farm 4-H Club;
- * A workshop class from the Animal Welfare Information Center, National Agricultural Library;
- * A group of soybean-tobacco-corn farmers from South Carolina; another farmer group from Idaho;
- * The Fraternity of Alpha Zeta, Maryland Chapter, held their fifth annual field day at the NVC with several hundred guests, live animals and scientific demonstrations.

A group of workers from the National Service AmeriCorps was assigned to the ARS National Visitor Center. The 15 workers took a tour of the Beltsville Center and will soon begin work on the grounds, in cooperation with the Beltsville Area engineers.

MEMBERSHIP DUES

We appreciate the response of our members to our recent correspondence regarding the change in our membership year - from April through the following March to a calendar year basis (January through December). We hope this change will serve as a better reminder when annual dues are payable. To those members who still have overlooked sending in your dues payment for 1995, please do so as soon as possible. We need the continued support of each and everyone of you. And, as mentioned in the past, please help us recruit new members.

DR. E. F. KNIPLING HONORED BY JAPANESE

The following article is quoted from the December 16, 1994, issue of The Washington Post. The article "says it all", but we wish to extend our congratulations to Dr. Knipling on behalf of FAR-B for this outstanding achievement, and to let all of our members know of the prestigious award bestowed on him. Dr. Knipling has been a Charter Partner of FAR-B since its formation in 1986.

The Second World War was still two years away when E. F. "Knip" Knipling, now 85, came up with the idea of releasing millions of sterilized bugs as a pesticide-free way of controlling insects that were killing livestock and crops.

Now, a half century later, the retired research scientist, who lives in Arlington, has won Japan's top scientific prize and \$510,000 for that 1937 achievement and his subsequent work in pest management.

"It was just an idea I had," Knipling said yesterday from his home. "I'd heard of the prize, of course, but I didn't even know I'd been nominated. You know, I've been in research about insects all of my career."

In fact, Knipling is credited with inventing the most environmentally friendly technique to control bugs and is a hero to many in the livestock industry for his innovative work, along with colleague R. C. Bushland, in eradicating the screw worm fly in North America. That work has saved cattle farmers hundreds of millions of dollars over the years.

"They are up there with the developer of the polio vaccine," said Rep. E. "Kika" de la Garza (D-Tex), a friend of Knipling's and outgoing chairman of the House Agriculture Committee. "The discovery is of the same magnitude as the great discoveries in medicine."

Knipling, who served for two decades as director of entomology for the Agricultural Research Service, has won the World Food Prize and the National Medal of Science and is a member of the Agriculture Research Service Hall of Fame.

Knipling said he will use his prize money to help finance the college educations of his 14 grandchildren and set up scholarships and funds for entomological research at Texas A&M and Iowa State Universities and at Florida State University, where he is a professor emeritus.

That title means little to Knipling, who retired in 1971 but still does research. His most recent book, "Insect Parasitism Analyzed From New Perspectives," was published two years ago.

Knipling's most recent work deals with using biological parasites instead of pesticides to fight unwanted insects that plague agriculture.

"If they continue to rely on insecticides, I think they are going to have hazardous problems continue indefinitely," he said. "Nature has created good parasites for nearly every pest we have. And these parasites don't harm people or animals or anything else."

Fifty years ago, Knipling and his partner fought the screw worm fly, which laid its poisonous eggs in tens of thousands of livestock across the country, by developing sterile flies. The sterile flies mated normally, but they produced no eggs, which led to a reduction in the fly population.

The idea lay dormant for two decades until technology made it possible to use radiation to sterilize the flies.

"The gamma rays affect the reproducing cells," Knipling said yesterday. "When the flies emerge, they are normal in all respects, but they can't reproduce."

Knipling and his wife, Phoebe, will travel to Japan for an award ceremony in April.

BELTSVILLE RESEARCH, A CONTINUING STORY

a new fiber optics probe was 95-percent accurate in identifying diseased and improperly bled chicken carcasses at processing plants. Light beams from the probe reflect off carcasses, with the problem ones sending back light spectra that can be analyzed and singled out instantly. The problem chickens either had a disease called septicemia or were improperly bled. These two problems account for over half of the carcasses removed from chicken processing lines by inspectors. Abnormal chickens were identified by a computer program that recognizes differences in reflectance spectra of returning visible and invisible light. The probe is held less than an inch from the carcass to send and receive light. An automated system using such a probe on processing lines would remove carcasses before reaching inspectors

Instrumentation and Sensing Lab

Yud-Ren Chen

Slim and trim adult rats that were put on a yo-yo diet had three to four percent more body fat than control animals kept on a steady calorie intake. These findings suggest that weight cycling - gaining, losing and regaining - could tip the scale in favor of fat accumulating in the body, at least for a while. Animals and people appear to adapt to a reduction in calories by storing more fat in times of plenty to prepare for the next deficit. A three- to four-percent increase in fat is not much for people of normal weight. But, it can be quite significant for obese people who often have much larger weight swings than the study rats. Because rats normally keep growing throughout life if allowed to eat all they want, the researchers limited growth of the test animals prior to the study, so it would more nearly approximate that

of adult humans. Then, they put one group of rats through three weight cycles, in which they gained 10 percent above starting weight, lost 10 percent below, then returned to starting weight. The other group remained on the growth-restricting diet. Both groups had the same energy intake and expenditure at the end of each cycle.

Beltsville Human Nutrition Research Center
Paul W. Moe/Eugene R. Wiley

Snowflakes can be magnified 10,000 to 20,000 times to improve forecasts of how much water will be released by melting mountain snowpacks in the spring. Snow melt provides as much as 90 percent of the water supplies in western states like California. Computer models now forecast how much of the snow melt will likely be available to farmers for summertime irrigation. The ARS snowflake images could improve snowpack data that's collected by remote-sensing satellites for the models. That's possible since the magnifications enable more precise calculations of snowflakes' size and structure. Standard snow-sampling techniques don't fully characterize these features. To produce the images, scientists dip snowflakes in liquid nitrogen at -320 degrees F, coat them in platinum and zap them with an electron beam for imaging by the scanning electron microscope.

Scanning Electron Microscopy Lab
William Wergin

A 77-year-old mistake about a wheat fungus in California was corrected by an ARS scientist, opening the state's trade door of wheat to China. The Chinese government imposed a zero-tolerance level for spores of the fungus, which kept the door shut on California wheat. That fungus, *Tilletia controversa*, causes dwarf bunt disease - not known to occur in China. China's quarantine could be traced, in part, to a USDA employee's report in 1917 that he had collected the fungus in California. Now, an ARS researcher has uncovered evidence, including a specimen from the U.S. National Fungus Collection and documents at the National Archives, that shows the collector erred. The culprit specimen came from Oregon. Based on this finding, China lifted its quarantine on wheat from California, which produces 1.3 million metric tons a year. Last year, China bought about three million metric tons of wheat grown in the Midwest.

Systematic Botany and Mycology Lab
Amy Rossman



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)
P.O. Box 1061, Beltsville, MD 20704-1061

April 1995

PRESIDENT'S REPORT

The Ninth Annual meeting of FAR-B was held on March 12. There were approximately 35 members present. The guest speaker was Gordon Marten, Associate Director, BARC. He discussed some of the activities that had taken place at BARC during the last year, and thanked FAR-B for their support. Two Board of Directors were elected. Phil C. Kearney accepted the nomination and was elected as the 6th Board of Director. Phil was the Director, Natural Resources Inst. (NRI) for several years before retiring in January. We are looking forward to having Phil on the board. Pat Jackson was re-elected to the board. She will continue helping with the Newsletter, and other activities.

FAR-B will co-sponsor Beltsville Symposium XX to be held May 14-17. Registration, poster presentations, luncheons, and socials will be at the Holiday Inn, College Park. Members of FAR-B can register for the regular sessions at no cost, but must pay to attend the receptions and social functions.

We continue to support many activities at BARC. This summer we will support a summer intern on the Agricultural Research magazine staff. Each FAR-B member receives a complimentary subscription to that magazine.

Members of the Board of Directors are on a committee entitled, AVENUES FOR NEW OPPORTUNITIES, appointed by Darwin Murrell, Director, BARC. The chairman of that committee is T. J. Sexton, Director, Livestock and Poultry Sciences Institute (LPSI). The goals of the committee are to develop strategic plans to improve the awareness and effectiveness of FAR-B. They are studying ways to increase the membership and support of FAR-B by employees at BARC, and developing strategies for obtaining support from corporations and other organizations that have cooperative research with BARC employees. New posters are being developed to publicize FAR-B's commitment to supporting the research and educational programs at BARC.

On July 19, the Third Annual Sustainable Agriculture and Integrated Pest Management Field Day will be held at BARC. Members of FAR-B are invited to attend that Field Day. Research and demonstration projects to find agricultural uses for rural, urban, and industrial wastes and various composted materials will be displayed. Some of those projects have been in place for 4 to 5 years.

The National Visitor Center located in the old Log Cabin, BARC-East would like volunteers for their Road Scholars Program. Volunteers are trained to serve as tour guides at the Center. Before serving as a guide, you will be informed of the research and other activities at the Center. For further information, contact Steve Berberich or Marge Fellows at 504-9483.

Many changes and activities are taking place at BARC. Some of those will be described in this newsletter. I hope that you will visit the Center and participate in some of those activities

JOHN G. MOSEMAN
President

BELTSVILLE SYMPOSIUM XX

The date for the 1995 Beltsville Symposium, "Biotechnology's Role in the Genetic Improvement of Farm Animals," is fast approaching (May 14-17). The symposium agenda consists of five oral sessions. The number of registrants now exceeds 300 from over 20 countries. The program includes 27 speakers as well as 62 poster presentations divided into two sessions. The abstract and proceedings book is on its way to the printer.

The registration fee for the technical program will be waived for retired FAR-B members, but the attendees must still register for the symposium. The Sunday social (\$20) is scheduled from 5:30 to 10 pm at the Holiday Inn. Monday's session (N/C) begins at 8:15 am in building 003, with the poster session-luncheon (\$20) scheduled for noon to 2 pm at the Holiday Inn. Monday's evening social (\$10) will be 6 to 10 pm at the Holiday Inn. Tuesday's session begins at 8 am, with the poster session-luncheon the same as for Monday. The evening social is scheduled from 7 to 11 pm. The session begins Wednesday at 8 am and closes at noon. Arrangements for a Beltsville Station of the U.S. Post Office have been made by Bill Wergin working with Al Piringer; FAR-B will benefit from the sales of specially postmarked envelopes.

We hope many FAR-B members will attend the symposium. If you have remaining questions, please contact Ginger Hupfer at 301-504-6108.

H. DUANE NORMAN
VERNON G. PURSEL
Cochairs, SYMPOSIUM XX

BELTSVILLE SYMPOSIUM XXI

The 1996 Beltsville Symposium is a joint meeting with the Association of Systematics Collections to be held May 19-21. The Symposium on "Global Genetic Resources: Access, Ownership and Intellectual Property Rights" is a timely topic of concern to all scientists. The purpose of the meeting is to explore issues related to ownership of and access to genetic resources and biological specimens as they affect the ability of scientists to do their job of providing knowledge to benefit the people of the world. While scientists desire free, international distribution of germplasm and scientific information on biodiversity, current forces and trends are leading away from this position. A mutually beneficial compromise is needed and this meeting will explore these possibilities.

The Co-chairs and Steering Committee include representatives from several BA Laboratories as well as from the American Type Culture Collections, Maryland Biotechnology Institute, University of Maryland, and the Smithsonian Institution. The program will feature a tapas dinner at the National Arboretum on Tuesday as well as a Sunday evening opening reception at the Holiday Inn, College Park. The representative from FAR-B is Morton Beroza. The Symposium Co-chairs are Amy Y. Rossman (301-504-5364) and Thomas Elias (201-245-4539) with Elaine Hoagland (202-347-2850) from the Association of Systematics Collections.

AMY Y. ROSSMAN
THOMAS ELIAS
Cochairs, SYMPOSIUM XXI

DIRECTOR'S COMMENTS

At a special Senior Executive Service Conference called by former Secretary Mike Espy in Washington, D. C. in mid-December, we met the new Under Secretary designate for Research, Education, and Extension, Dr. Karl Stauber. Dr. Stauber has a Ph.D. in public policy, and he is quite concerned about the development and well-being of small farms and rural communities. When Dr. Stauber and his staff subsequently visited Beltsville on January 5 and 13, we emphasized our excellent research in sustainable agriculture, biological control of pests, and food safety and nutrition.

Four senior BARC scientists retired on January 3, 1995: Philip Kearney, Director of the Natural Resources Institute; James Svoboda, Research Leader of the Insect Neurobiology and Hormone Laboratory; Richard Sayre, chemist in the Nematology Laboratory; and Francis Uecker, botanist in the Systemic Botany and Mycology Laboratory. We were saddened to hear of Dr. Uecker's death from brain cancer in mid January. We are grateful for the substantial contributions made by these scientists over the last 30 years or more.

Dr. Donald Bills has become the new Director of the Natural Resources Institute, and we closed out the Product Quality and Development Institute in order to reduce administrative costs. The Instrumentation and Sensing Laboratory and Pesticides Research Staff have gone with Dr. Bills to the Natural Resources Institute. The Horticultural Crops Quality Laboratory was placed in the Plant Sciences Institute, and the Meat Science Research Laboratory was placed in the Livestock and Poultry Sciences Institute. The former Family Economics Research Group has left ARS, along with the Nutrition Education staff of the former Human Nutrition Information Service to become members of the Food, Nutrition, and Consumer Services headed by Undersecretary Ellen Haas.

Budget cut threats are being carefully monitored--we won't know the final outcome until next summer or fall, even though any cuts proposed in the President's budget will be revealed the second week of February. At best, we can plan on a flat budget or gradually declining budget for the next several years. However, we will do our best to maintain our high priority research.

We also continue to move forward in planning BARC's modernization. The Controlled Environmental Facility (to be located between the new Horticultural Sciences Building and the new Range 2 greenhouses) will be at the 100% design stage by about March 1--at this time, it is still included in the President's budget for FY 1996. Gutting and rebuilding of Building 001 is in progress and on schedule.

Whereas, the proposed USDA Office Complex is not part of BARC's modernization, it has been located in a non-agriculturally valuable site in keeping with our new Master Planning process. Two buildings (each two stories) will be built near the Metro Green Line Service yard south of Sunnyside Avenue to hold 1,500 USDA employees who are now scattered throughout the Metropolitan Area. Responses from EPA and from the public after announcement in the Federal Register are required before the project becomes officially cleared. An early spring groundbreaking and a December 1996 completion are anticipated.

We have appointed a 7-member ad hoc committee (including 3 FAR-B Board members) to consider potential long-term strategies for FAR-B. Dr. Thomas Sexton, Director of the Livestock and Poultry Sciences Institute, has agreed to chair this committee, which will receive its charge from Dr. Murrell at its first meeting sometime in February. We look forward to even greater involvement by FAR-B in the total BARC program in 1995.

GORDON C. MARTEN
Associate Director

ARS NATIONAL VISITOR CENTER

* Historic tours of the Beltsville Center will be conducted by Michael Combs of the National Visitor Center staff beginning on May 19th at 10:30 a.m. FAR-B members should reserve a seat on the tour bus. Call Marge Fellows 504-8483. Working with an outline of significant milestones in Beltsville research and the cultural background of the area, Combs heads a committee of NVC Road Scholars who take a special interest in history. He is also representing ARS on the Agriculture Committee of the Prince George's Tricentennial (1996) Committee.

* Outside displays of pollinating bees, a solar fly trap and a compost processor are now set up at the Visitor Center. The staff has developed accompanying handout information on research from the Bee Research Laboratory, Livestock Insects Laboratory, and Soil Microbial Systems Laboratories at Beltsville respectively.

Visitors from over 30 different countries, including:

* A group of leading farm managers from Russia. Doral Kemper, ARS National Program Staff, Soil Management introduced the Russians to Paul Rasmussen. Rasmussen, ARS Soil Scientist, was visiting from his laboratory in Pendleton, Oregon. Rasmussen gave a slide-lecture on soil and land management research to the Russians at the National Visitor Center.

* The Minister of Agriculture of Kazakhstan, a member of their parliament, and other high-ranking agriculture officials. They were hosted here by Assistant Administrator Richard Soper and Deputy Assistant Administrator Ruxton Villet, Office of International Activities.

* 13-member Chinese team on soybeans and corn germplasm research. This was part of a 30-day tour of U.S. facilities, arranged by Randal Nelson, Research Geneticist, ARS Geneticist, National Soybean Research Laboratory, U. of Ill.

* The U.S. Marine Corps' Amphibious Warfare School Officers from 11 foreign countries and their families.

* Visitors from the Royal Veterinarian College of Denmark.

Educational Groups included:

* Research Fellows of 1890/Historically Black Colleges and Universities.

* Advanced students of the Oxon Hill High School Science and Technology Center.

* Towson State University, Environmental Conservation Class.

* Pennsylvania State University Ag Club.

* Four days of visits from classes of the Beltsville Center's adopted school, Nicholas Orem Middle School, Hyattsville.

Groups of U.S. Professionals included:

* Bee Researchers' Conference; The Institute of Applied Agriculture, Maryland; General Accounting Office Analysts; U.S. Soldiers and Airmen Home, Washington, D.C.; farmers and farm families from seven states; and "Welcome to Washington--International".

BELTSVILLE RESEARCH, A CONTINUING STORY

The uncomfortable procedure now used to remove cells from the colon to detect cancer or look for pre-cancerous conditions may soon go the way of the dinosaur. ARS and Johns Hopkins University researchers have developed a method for isolating viable colon cells from a fresh stool sample. Not only will the technique allow doctors and researchers to bypass the invasive and expensive colonoscopy, it also will enable a more thorough inspection of the Colon Cells. Cells isolated from the stool represent conditions in the entire colon rather than a few areas scraped during biopsy. That's because the lining of the colon sheds more than a billion cells every day, most of which are still viable as they pass out of the body through the stool. The technique uses standard laboratory equipment and currently costs \$40 to \$50 per sample, compared to \$1,000 to \$1,500 for colonoscopy, which must be done in a hospital. When geared up for use by commercial laboratories, the cost will drop even further. And the test will take less time.

Beltsville Human Nutrition Research Center
Padmanabhan P. Nair

Some weeds may be bad for allergies, but good for cleaning up the environment. These plants selectively remove heavy metals such as lead, zinc and cadmium from contaminated soils. Other plant species accumulate radioactive isotopes such as uranium or cobalt. Alpine pennycress--a small perennial herb--has emerged as the best at removing cadmium and zinc after a three-year study in Maryland and at a Superfund cleanup site in a Minnesota landfill. Alpine pennycress can hold 30,000 parts per million (ppm) of zinc in its leaves without any loss in growth, compared to a 500-ppm limit for most plants. Pennycress and other "hyperaccumulators" can be made into "hay" annually, then burned for electricity generation. Their ashes can be recycled and marketed commercially. ARS researchers have finished the Minnesota test and are continuing lab tests in Maryland on different strains of pennycress. They have begun a field test at a smelter-contaminated Pennsylvania city park that has three-percent zinc levels in its soil. The pennycress is thriving where crops can't survive. The next step is to complete inheritance studies to find genes for hyperaccumulation from pennycress or ragweed and move them into common crops that grow larger, faster and are easier to harvest. Canola grown for hay is a possible candidate.

Environmental Chemistry Laboratory
Rufus Chaney

The dairy industry needs a more reliable method to detect residues of certain antibiotics in cow's milk. Now it has one: an ARS-developed method that accurately detects all six antibiotics commonly used to treat and prevent mastitis, an infection of the udder in dairy cows. The Food and Drug Administration (FDA) puts strict limits on the levels of these antibiotics in milk. Two of the six--cloxacillin and ceftiofur--are difficult to detect by commercial screening test kits. Sometimes, today's tests err by indicating that the level of antibiotics is too high. The key to the new method is a chemical solvent, called acetonitrile. The scientists use the solvent to remove milk proteins from the sample. What's left is concentrated by evaporation. They then test the concentrated sample with a commercially available, antibiotic screening kit, called Delvotest-P. The new method is inexpensive, so it can be used for screening milk samples from individual cows, as well as from large tanker trucks. The FDA provides guidelines to farmers for checking milk samples, and requires dairy industry personnel to test tankers of milk for the six antibiotics.

Meat Science Lab
Raida Harik-Khan/William Moats

One to two alcoholic drinks daily had a positive effect on young women's blood cholesterol, according to the first controlled-diet study of alcohol in young women. Beneficial HDL cholesterol increased an average 10 percent while artery-clogging LDL cholesterol dropped eight percent. Women volunteers received the Equivalent of two six-ounce glasses of wine or two ounces of liquor daily. Total cholesterol did not change. However, daily consumption increased levels of estrogen hormones from seven to 32 percent during the women's menstrual cycles. Estrogen hormones are thought to play a role in breast cancer, although how they do so has remained elusive. About 44 percent of American women drink alcoholic beverages at least once a month, so researchers with ARS and the National Cancer Institute wanted to assess the effects of alcohol as part of the diet in women ages 21 to 40. This age group is rarely studied because blood lipids and other biochemical markers tend to fluctuate with female hormone changes throughout the menstrual cycle. Researchers reduced this variable by sampling blood when each woman's female hormone levels were at their lowest. To ensure that any changes in blood lipids were due to alcohol intake and not to dietary habits, the women were given the same diet with the same amount of fat-- 36 percent of calories--through the six-month study. The findings support evidence linking alcohol consumption to higher HDL levels in men and women.

Beltsville Human Nutrition Research Center
Beverly Clevidence

Creating soybean varieties that produce certain antioxidants could eliminate the estimated five - to 20-percent losses caused by ozone pollution. ARS scientists tested 20 soybean lines or varieties that have varying amounts and kinds of naturally occurring antioxidants, called flavonol glycosides. They found that only those plants with one or more kinds of certain glycosides could tolerate high ozone levels. One of these plants, a commercial variety called "Lee", was tolerant not only to ozone, but also to excess soil manganese. That suggests the antioxidant could protect soybeans against multiple stresses, such as manganese, ozone and even ultraviolet rays. Scientists are searching for the genes controlling production of antioxidants to use in creating ozone-tolerant varieties. They also want to create improved synthetic versions of the antioxidants to spray on crops.

Climate Stress Lab
Charles D. Foy

Years of searching for the ideal microbe to gobble up herbicides in the rinsewater from tractor-pulled pesticide tanks has ended. ARS found the microbe in sewage sludge at a municipal water treatment plant near Washington, D.C. Once the microbe is done feeding, farmers can dump the water on the ground without fear of contamination. That frees farmers from having to store several thousand gallons of rinsewater a year while searching for a way to safely dispose of it. The microbe, *Klebsiella terrigena*, has a strong preference for the organic nitrogen in herbicides, but turns up its nose at the inorganic form in fertilizer. Previously tested microbes ate only fertilizer nitrogen in the rinsewater and left the pesticides untouched. The new microbe degrades the major herbicides--atrazine, cyanazine, and simazine--after an initial treatment with ozone to begin the breakdown process. Other microbes have been found that degrade alachlor, metolachlor and 2,4-D after ozone treatment. After feeding, little is left besides water and carbon dioxide. To treat rinsewater, farmers use two 55-gallon, cone-shaped tanks common on farms. An ozone generator, the only specialized equipment needed, is attached to one tank to pump ozone through the rinsewater for 12 hours. Then the rinsewater is pumped to the second tank where microbes completely degrade the pesticides in the next 24 hours.

Environmental Chemistry Laboratory
Cathleen Hapeman/Jeffrey Karns/Daniel Shelton



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)
P.O. Box 1061, Beltsville, MD 20704-1061

October 1995

PRESIDENT'S REPORT

Perhaps this should be more appropriately called the Vice-President's Report - or the Acting President's Report - since I am substituting for Dr. John Moseman, who has so ably served as FAR-B President for over two years. I am sorry to report that John suffered a stroke back in early May and is still in the midst of a lengthy recovery. I am pleased to report, however, that he continues to make progress and I know I speak for all FAR-B members in wishing him a full recovery. John has requested, however, in view of the pace of his recovery, that he be relieved of his duties as President. Until a new President can be elected, I will temporarily handle the duties of that post.

Symposium XX on the subject "Biotechnology's Role in the Genetic Improvement of Farm Animals" was held May 14-17, 1995, and was a huge success. There were 383 attendees at the Symposium and the feedback has been extremely positive. The proceedings will be published, in book form, by the Journal of Dairy Science. As usual, FAR-B played a key role in co-sponsoring this important event, and our thanks to Dr. Mort Beroza who acted as our liaison with the BARC Symposium Organizing Committee. And a special thanks to the following companies who generously supported this year's symposium: American Farm Bureau Federation, Park Ridge, IL; Avian Farms International, Inc., Waterville, ME; DeKalb Swine Breeders, Inc., DeKalb, IL; Monsanto, St. Louis, MO; Pig Improvement Corporation, Franklin, KY; Hubbard Farms, Inc., Walpole, NH; and National Dairy Herd Improvement Association, Inc., Columbus, OH. One of the highlights of the Symposium was the presentation of FAR-B's Distinguished Scientist Award, which this year went to Dr. Harold Hawk "In recognition of outstanding research accomplishments and inspired leadership in the study of female fertility in cattle, sheep, and small animals; sperm survival and transport; and the production and testing of transgenic farm animals". Our congratulations to Dr. Hawk.

Plans are shaping up for Symposium XXI, which is titled "Global Genetic Resources: Access, Ownership, and Intellectual Property Rights". Drs. Amy Rossman and Tim Elias are co-chairs of this symposium, which will be held May 19-22, 1996. A tentative title has already been selected for Symposium XXII for 1997, "Co-Utilization of Byproducts: Strategies for Land Improvement". Drs. Ron Korcak, Pat Millner, and Bob Wright are the co-chairs for this event. FAR-B will again play an active role in planning and organizing these symposia.

In our last Newsletter we reported on the activities of a BARC/FAR-B committee, chaired by Dr. Tom Sexton, Director of the Livestock and Poultry Sciences Institute, which has as a part of its mission to increase FAR-B membership from among current employees. Correspondence has been drafted, approved, and sent to all Beltsville Area employees through the various Institute Directors. The committee also wants to encourage the development of strategies for obtaining corporate support for FAR-B, and will be working on this phase of its mission this fall and winter. Our thanks to Dr. Darwin Murrell, BA Director, for initiating this joint endeavor.

On June 26 two new state-of-the-art Wastewater Treatment Plants were dedicated at BARC, a significant milestone in the long-range plans for modernizing the facilities at the Center. A number of dignitaries, including Congressman Steny Hoyer, were present for this event and FAR-B was pleased to provide the funding for the serving of refreshments. Similar funding was provided for the Sustainable Agriculture and Integrated Pest Management Field Day on July 19.

In August I attended a reception honoring 56 Summer Interns at BARC. Dr. Gordon Marten, Acting BA Director, spoke to the group. Many of the students and their mentors gave brief accounts of their assignments and work experiences. FAR-B was recognized for its funding of two Summer Interns this year. We hope we can continue to inspire young college students in the work of ARS by providing similar funding in the years ahead.

FAR-B has also been working closely with the ARS National Visitor Center on various projects. We accepted the gift of two Bio-Orb Composters from the Shape Plastics Company in Wisconsin, and these are on display at the Center. The composters will be used in conjunction with handouts at the Visitor Center and probably with an exhibit on composting and soil microbes. Also, the Connecticut Beekeepers Association has donated an oak-encased hive to FAR-B and the Center plans to construct an exhibit next to the hive. Working with Steve Berberich, Director of the National Visitor Center, and Dr. Shimanuki of the Bee Research Laboratory, we are in the process of soliciting funds from various beekeeper associations for the construction of this exhibit.

The FAR-B Board of Directors has taken a brief recess during July and August, but now that September has arrived (with cooler weather, we hope) we are resuming our monthly meetings and we look forward to working with BARC officials with renewed vigor and enthusiasm.

FRANK LONGEN
Acting President

BELTSVILLE SYMPOSIUM XXI

The 1996 Beltsville Symposium is a joint meeting with the Association of Systematics Collections to be held May 19-22. The Symposium on "Global Genetic Resources: Access, Ownership and Intellectual Property Rights" is a timely topic of concern to all scientists. The purpose of the meeting is to explore issues related to ownership of, and access to, genetic resources and biological specimens as they affect the ability of scientists to do their job of providing knowledge to benefit the people of the world. While scientists desire free, international distribution of germplasm and scientific information on biodiversity, current forces and trends are leading away from this position. A mutually beneficial compromise is needed and this meeting will explore these possibilities.

Twenty four international, national, and local speakers have been confirmed for this symposium. A letter to obtain sponsors has been drafted and will be discussed at the next FAR-B meeting. Suggestions for potential sponsors and/or contacts are willingly accepted. In July it was tentatively decided to combine the Beltsville Symposium with a similar meeting being organized by the Crop Science Society of America. ASC Executive Director Elaine Hoagland is putting together a list of relevant literature so that interested participants can prepare for the meeting.

Ideas for potential sponsors can be communicated to FAR-B representative Mort Beroza, to either of the Symposium Co-chairs Amy Y. Rossman (301-504-5364) or Thomas Elias (202-245-4539), or to ASC Executive Director Elaine Hoagland (202-347-2850).

AMY Y. ROSSMAN
THOMAS ELIAS
Co-Chairs, Symposium XXI

DIRECTOR'S COMMENTS

The new administrator of ARS should be named sometime in October. Dr. Murrell will remain as Acting Administrator and Dr. Reginato (Pacific West Area Director) will continue as Acting Associate Administrator until then.

ARS has finished its five regional "Visioning" Conferences; results from these are being summarized and will serve as a base for strategic planning. The entire process involves a close examination of the current and future role of ARS as a public agricultural research provider; the formation of ARS's future vision, mission, and goals; and the development of effective strategic planning to achieve the vision, mission, and goals.

The nine areas that were identified as major roles that ARS must address are:

- Provide Leadership in the Agricultural Research Agenda
- Strengthen Relationships with ARS Partners
- Educate and Relate to Consumers and Other Constituents
- Develop and Transfer Information Systems and Technology
- Carry Out and Support Quality, Relevant Science
- Focus on Long Term, High Risk Research
- Address Environmental Issues
- Promote Interdisciplinary Team and Systems Approaches
- Develop and Strengthen Institutional and Human Resources

The timetable for the strategic planning process calls for ARS to submit its strategic plan to the Office of the Secretary in March 1997. Under the Government Performance and Results Act, the ARS strategic plan for fiscal years 1998 to 2002 will take effect on October 1, 1997.

Key statistics from the Beltsville Area "State-of-the-Area" for FY 1996 include net funding of \$95.2 M (up from \$79.5M in FY 1991, but down from \$101.7M in FY 1995); FTE's of 1,290 persons (down from 1,402 in FY 1991 and from 1,304 in FY 1995); post doctoral scientists of 76 (down from 83 in FY 1991, but up from 73 in FY 1995); and permanent category 1 or category 4 scientists of 323 (down from 355 in FY 1991 and from 349 in FY 1995). Most of the 40 research laboratories that remain in the Beltsville Area meet the guidelines of \$20K/SY discretionary funds or greater for FY 1996, which indicates that our Management Team is doing a very good job.

Four recent retirements are those of Dean Plowman, Essex Finney, Glen Vandenberg, and Erik Neumann. The Celebration of Excellence will be held in the auditorium of building 003 at 1 p.m. on October 25. Walter Mertz and Harry Borthwick (posthumous) will be inducted into the ARS Hall-of-Fame on November 28 (dinner at the U.S. National Arboretum). Beltsville scientists again won the ARS Outstanding Early Career Scientist (Paul Van Raden) and Outstanding Senior Research Scientist (Rufus Chaney) Awards which will be presented in the auditorium of 003 at 1 p.m. on November 29. FAR-B members are welcome to attend all of these events. Thanks to FAR-B Board member, Gus Hanson, for his excellent service on these award committees. Thanks also to FAR-B for providing the lunches for the close to 50 students who graduated recently from the summer research apprentice (high school) and intern (college) programs.

GORDON C. MARTEN
Acting Director

ARS NATIONAL VISITOR CENTER

* During the summer, the agricultural subcommittee of the P.G. Tricentennial Committee met at both the National Visitor Center (NVC), and the National Agricultural Library (NAL). Yet there is currently no one on the committee from BARC. There are no scheduled events during the Prince George's County Tricentennial year of 1996 to recognize the scientific and agricultural contributions of the Beltsville Agricultural Research Center.

The committee does plan to hold an opening reception at NAL that would include some ARS exhibits on January 25, 1996. The committee is cultivating other ideas including classroom history lessons, a special electronic bulletin board, a festival of arts, historic reenactments, train rides, traveling exhibits, and special 1-day events at prominent locations. Contact Steve Berberich at 504-9403 if you have an idea on BARC to share with the committee.

* Seven Road Scholar volunteers and four NVC staff members provided tours and driving for the Precision Agriculture Field Day in June. Training of volunteers will continue in October. Call the Visitor Center 504-9403.

Visitors from over 36 different countries, included:

- * The U.S. Information Agency sponsored the visit of senior advisors from nine European nations. It was part of a month-long special course on American agricultural issues.
- * The Vice Minister of Agriculture and his delegation from the People's Republic of China.
- * The Chair of the President of Poland's Council of Rural and Agricultural Issues.
- * A member of the Nepal Research Council.
- * The Director of the Lithuanian Institute of Agriculture and a member of the Academy of Agriculture from that nation.
- * A group of 12 Ukrainian journalists.
- * A group of students from Ain Shams University in Egypt.
- * A delegation of scientists from China who administer their plant and animal quarantine programs.
- * A new science attache' from the Embassy of the Philippines.
- * A delegation from the Thai Department of Livestock Development.
- * An official from the Brazilian Federal Rural University.
- * The Egyptian project coordinator of their National Agriculture Research Partnership with USDA, now in its fifth year.

Educational Groups included:

- * 65 Curriculum Coordinators of state Ag-in-The-Classroom programs coordinated through the national AITC office in the Secretary of Agriculture's Office.
- * The 12 national student scholars of the USDA's Consolidated Farm Services Agency.

- * Alfred State University in New York brought 10 agriculture teachers as part of the "Classroom on Wheels" program.
- * Howard University's Young Scholars program brought 40 to 50 students from 8th and 9th grades.
- * 70 students from the National 4-H program, Cooperative Application of Science and Technology.
- * 40 Future Farmers of America students from Philadelphia.
- * 23 elementary school classes; * 20 middle and high schools; came from eight states.
- * Colleges: University (s) of Pittsburgh, Georgetown, Maryland, Penn State, Virginia State, Washington State, Frostburg State (MD), Towson State (MD), Loyola College (MD), Seton Hill College (PA).

Groups of U.S. Professionals included:

- * The ARS meeting of the Produce Marketing Association and the International Fresh Cut Produce Association.
- * Scientists with the International Trichoderma (plant diseases) workshop.
- * The Minnesota State Cattlemen's Association delegation.
- * Visitors from the American Society of Plant Physiologists.
- * The 35 to 40 Master Gardeners of North Carolina were sponsored by the N.C. Cooperative Extension Service.

BELTSVILLE RESEARCH, A CONTINUING STORY

...With the Electric Power Research Institute and the U.S. Geological Survey, to develop a global warming computer model. It will predict effects of climate change on water availability for electricity and other uses such as drinking, irrigation and recreation. New techniques will be developed and incorporated in a USGS modular "shell" along with various existing computer models. The components, such as those for irrigation and hydroelectric power scheduling, can be easily plugged in or removed from the shell. In the project's first phase, scientists will incorporate the ARS Snowmelt Runoff Model, which forecasts the amount of snowmelt runoff each spring. Once this is done, the Electric Power Research Institute can generate climate-change scenarios for power companies in snow regions. The snowmelt model's simplicity eliminates the need to calibrate long-term weather records. ARS also has labs in Arizona and Idaho working with USGS to incorporate the snowmelt and other models. The final product will use projected changes in precipitation and temperature to predict effects on soil moisture and groundwater as well as snowmelt runoff.

Hydrology Lab
Albert Rango (301) 504-7490

Internet users now have access to a database that allows better assessment of the water pollution potential of 230 of the most widely used pesticides. The database includes more than 95 percent of the popular herbicides, fungicides and insecticides used in agriculture. And another 120 pesticides are being added. Farmers, pesticide companies, water resource managers and environmental groups can access the ARS Pesticide Properties Database to gain a better understanding of how and where

pesticides may threaten water quality. The data show 16 of the most important chemical, physical and biological characteristics or properties of pesticides. They relate to each pesticide's degradation rate or likelihood of moving into surface or groundwater. For example, a chemical that clings strongly to soil particles is less likely to be washed into groundwater during a rain storm. The database is for use with crop and soil computer models that account for local factors, such as soil texture and temperature, that affect pesticide mobility and longevity. The database is available on the laboratory's World Wide Web home page at <http://www.arsusda.gov>

Systems Research Laboratory
Basil Acock (301) 504-5827

A human virus normally harmless in laboratory mice mutated into a heart-damaging pathogen when the animals were raised on a diet devoid of selenium. The virus continued to damage hearts, even in mice that later got ample selenium in their feed. The findings are the first indication that a nutritional deficiency can cause a virus to mutate into a more virulent form. And its importance is not limited to nutritionally-deprived populations. ARS researchers supplied the nutritional expertise and diets, and collaborating University of North Carolina researchers provided the coxsackie viruses--there are 29 different types--which infect more than 20 million Americans annually, producing a range of maladies from sore throat and cold symptoms to inflammation of the heart muscle. About 10 percent of infected people develop serious diseases, such as heart muscle inflammation. Other nutritional deficiencies also seem to cause viral mutations. University researchers are now analyzing the genes of another coxsackie virus that damaged hearts in vitamin E-deficient mice. They expect to find the same alterations as with selenium deficiency. Both nutrients serve as antioxidants in the body. If such mutations occur in other RNA viruses, that may help explain the many new strains of influenza virus in China, which has wide-spread selenium-deficient areas.

Beltsville Human Nutrition Research Cntr.
Orville A. Levander (301) 504-8504
University of North Carolina
Melinda A. Beck

Can refuse from starch-bases plastics be converted into compost for America's farms and gardens? Not until the current biodegradable formulations change. Researchers with ARS and Rodale Institute in Kutztown, PA, found that only plastic golf tees work. They added the tees along with forks and other starch-based plastics, as well as the pellets used to manufacture them, to a compost pile. After 11 weeks, only the golf tees were indistinguishable from the decayed leaves, used paper plates and poultry litter with which they were composted. All the other items, made with a different plasticizer, failed to decompose sufficiently, even after a year. The researchers concluded that these items had been made with too high a percentage of the wrong type of plasticizer to make acceptable compost for farmers and gardeners. They plan to test other biodegradable formulations, as they become available. The work is part of an overall testing of various industrial, urban and rural wastes as possible ingredients in a low-cost commercial compost.

Soil-Microbial Systems Research Lab
Don Kaufman, at the Rodale Inst.



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)
P.O. Box 1061, Beltsville, MD 20704-1061

January 1996

PRESIDENT'S REPORT

We hope that all of our members enjoyed a happy holiday season and we wish all of you a happy, healthy, and prosperous New Year.

There are a number of items which will be of interest to our membership, particularly our retired members, and I will attempt to enumerate them for you in this report. First, I would like to mention several key personnel changes that have taken place in recent weeks and months. We regretted to learn that Dr. Gordon Marten, who has served as the Associate Director of the Beltsville Area (and as Acting Director during Dr. Murrell's several months' detail to the Administrator's Office), decided to retire at the end of December. Gordon has been an excellent administrator and spokesman for the Beltsville Area. He has also been a strong supporter of FAR-B and we will miss working with him. Also, Dr. Darwin Murrell will be on sabbatical leave for six months beginning in January. More details on these two assignments are in the Director's Report later in this Newsletter, along with information on the filling of the positions during Dr. Murrell's absence.

At the ARS level, most of our members are aware that Dr. Essex Finney retired last April as Associate Administrator. In August, Dr. Dean Plowman retired from the ARS Administrator position. We are very pleased to report that Dr. Floyd Horn was appointed by Secretary Glickman as the new ARS Administrator on October 16. Dr. Horn has a distinguished history in ARS, serving for 24 years as a scientist, a research leader, and in program administration positions for the Agency. He was director of ARS's Southern Plains Area in College Station, Texas, from 1987 to 1994. He began his career with ARS in 1970 as a research animal scientist at the Grazinglands Research Lab in El Reno, Oklahoma, and became director of that lab in 1973. He became Associate Director of the Northern States Area based in St. Paul in 1985 and served there until 1987 when he became director at College Station. He has served as Deputy Assistant Secretary of Agriculture for Science and Education and, following the USDA's reorganization, served as Deputy Under-Secretary for Science, Education, and Economics from 1994 to May 1995. Dr. Horn brings a wealth of research and administrative experience to his new assignment and we wish him great success.

To fill the post vacated by Dr. Finney, Dr. Horn has announced that Dr. Robert J. Reginato has been selected as the Associate Administrator of ARS. Dr. Reginato is presently the Director of the Pacific West Area in Albany, CA. He will report to his new assignment on February 5, 1996. Dr. Reginato has also had a distinguished career in ARS. He began his career as a Soil Scientist at the ARS Water Conservation Lab in Phoenix, AZ in 1959, serving as research leader of the soil-plant-atmosphere systems research unit from 1980 to 1989. He was Associate Director of the Pacific West Area before becoming Director in 1991.

On another subject, it is once again time to renew our membership in FAR-B. We are beginning our 11th year as an organization dedicated to serving the Beltsville Agricultural Research Center. We feel

we have accomplished much over the years thus far. The support we have given to the annual symposia series has been particularly noteworthy. Our solicitation of industry financial support for these symposia has been very successful and has netted many thousands of dollars. This has enabled BARC to keep registration fees at relatively low levels for participants with higher levels of attendance, as well as save money for research programs. Your support through the payment of dues has enabled us to fund the employment of a number of Summer Interns; to purchase various equipment items, such as a computer, printer and fax for the Symposium Office, a rangetop and other appliances for the conference room kitchen for the new Horticultural Sciences Building, as well as smaller items; and the funding of luncheons and refreshments in connection with dedications and other functions where the use of Federal funds would not be possible. BARC has been very appreciative of all the good work FAR-B has accomplished and looks to us as a real partner in furthering its programs. To continue to do this we need your support as we begin a new membership year. Individual reminder notices have or will be sent to you concerning your 1996 dues. Please send your dues payments in the near future so we will know the funds we will have for the year from this source. This will help in developing our plans for the year. Dues for '96 have not changed - \$100. for Patrons, \$20. for Personal Members, and \$10. for Associate Members (current employees). We look forward to hearing from you.

In an earlier Newsletter we reported on an initiative taken to bring more BARC employees into our FAR-B ranks as Associate Members. The committee of BARC and FAR-B officials has been working on this project and we are pleased to report that over 30 additional employees have joined FAR-B, bringing the total of Associate Members to over 60. Our membership in the categories of Patrons and Personal Members is holding steady at between 90 - 100. Our committee will be working to increase corporate membership over the coming months.

Moving on to another subject, we are pleased to report that in recent months FAR-B has received three very significant contributions from corporate donors. One was received from the Distilled Spirits Council of the United States in the amount of \$10,000. Another, in the amount of \$5,000. was received from the Jim Beam Brands Company, Inc. Both of these contributions were made to further the research programs of the Beltsville Human Nutrition Center. A third contribution was from the Proctor & Gamble Company in the amount of \$2,800. We are very grateful to these corporate donors.

Mark your calendar for the FAR-B Annual Meeting on Tuesday, March 12, 1996, at 2PM at the ARS National Visitor Center (Log Lodge). We will have an interesting and informative program for you. Of primary importance will be the election of a new FAR-B President. As usual, we will have some refreshments after the meeting so come and enjoy the socializing with former and current employees. Last years' turnout was good and we hope this years' will be even better.

Lastly, it is with sincere regret that we report to you the news of the deaths of three of our FAR-B members in recent months. They include: Earl S. Sharar, who passed away last August. Earl will be remembered for his long career and excellent work in the administrative management area. At the time of his retirement in 1970 he was serving as Director of the Eastern Administrative Division in Hyattsville, and earlier held a similar position in the Southern Administrative Division in New Orleans. After his retirement Earl made his primary home in Bradenton, Florida. He suffered a heart attack while at his summer home in WV, and after surgery in Washington he later passed away while convalescing in a nursing home in Potomac, MD. We also received word that Dr. Raymond Hoecker died on October 21 in Springfield, MO, where he moved following his retirement from ARS. Dr. Hoecker had a long and distinguished career with the USDA and at the time he retired he was serving as Director of the Former Chesapeake and Potomac Area of ARS and before that served as Associate Director of the Transportation

and Facilities Research Division. Dr. Hoecker was the innovator of the Universal Product Code, the bar of thick and thin lines read by electronic scanners for merchandise pricing. His idea for a universal code scanning system in 1968, which began as a round symbol with lines radiating from the center, was the forerunner of the modern rectangular UPC used in nearly every cash register in the United States. He was also responsible for instituting the practice of prepackaging meat sold in grocery stores. Dr. Hoecker retired from ARS in 1975. In December, we learned of the death of Dr. Samson R. Dutky. Dr. Dutky had a distinguished career as a Research Entomologist in ARS at Beltsville and was a national and international authority in the biological control of insects. He authored or co-authored numerous publications and articles. He retired in 1981.

FRANK LONGEN

Acting President

BELTSVILLE SYMPOSIUM XXI

The purpose of the meeting is to explore issues related to ownership of and access to genetic resources and biological specimens as they affect the ability of scientists to do their job of providing knowledge to benefit the people of the world. While scientists desire free, international distribution of germplasm and scientific information on biodiversity, current forces and trends are leading away from this position. A mutually beneficial compromise is needed and this meeting will explore these possibilities. Twenty four international, national and local speakers will participate in this symposium with emphasis placed on the value of specimen-based research to the global community.

Plans for the BA Symposium are progressing well. During the past month emphasis has been on publicity for the Symposium with advertisements placed in *Science* and *BioScience*. Registration forms have been printed and sent to all those who responded to the preliminary announcement. The registration form will be mailed to all individuals who subscribe to *Diversity* magazine. In addition, announcements have been placed in numerous newsletters of scientific societies.

Registration is \$195 if received by April 1, 1996 and includes meetings, two receptions, a banquet, and the Proceedings. Posters may be presented. For a registration form, contact: Virginia Hupfer, B003, Rm. 220, 10300 Baltimore Avenue, Beltsville, MD 20705-2350, (301) 504-6108, FAX (301) 504-6357, email: mbohning@ars-grin.gov.

AMY Y. ROSSMAN

THOMAS ELIAS

Co-Chairs, Symposium XXI

DIRECTOR'S COMMENTS

Things tend to change quickly at Beltsville but it seems like the past few months have seen more changes than normal. For much of the past year I have been on detail downtown as an Associate Administrator of ARS. That experience occurred at a time when we had major changes in the management of ARS and REE and when research at the Federal level has been under unprecedented scrutiny.

No doubt you are aware of the retirement of Dr. Gordon Marten from ARS. Gordon is no stranger to FAR-B and he will be missed not only for his administrative abilities but as a friend and colleague by many at BARC and within ARS. He has returned to Minnesota where he will join his wife in St. Paul. For the next six months, Dr. Joe Spence, Director of the Beltsville Human Nutrition Research Center, will be acting Associate Area Director. During that time period starting January 15th, I myself will be on sabbatical leave as a Fulbright Fellow in Denmark where I will be working on livestock parasites. The acting Area Director will be named soon by ARS Administrator, Dr. Floyd Horn. Dr. Don Bills has decided to retire and will eventually move to his native Oregon. Until a search for his replacement is completed, Dr. Mike Ruff, the BA Technology Transfer Officer, will be acting Director of the Natural Resources Institute.

We in the Department of Agriculture have been unaffected by any of the recent government shutdowns since we have had an appropriation that was agreed to by the President and the Congress for FY 1996. No doubt this indicates the importance that agriculture continues to occupy in the minds of our elected representatives. Despite some of the cuts that have occurred in other research organizations within the Federal government, our appropriation has not had a major negative impact on Beltsville and we are hopeful that the same will be true for FY97. We should see what the President's budget for next year has in store for us very soon.

We are continuing to modernize BARC. Building 001, which will eventually house much of the Natural Resources Institute, is scheduled for completion in the Fall of this year. The Range 2 greenhouses are soon to be occupied and we have developed plans to demolish some of the older greenhouses that will be replaced by the new, state-of-the-art facility. Our next major project is the construction of a controlled environment facility to be located next to the new Horticultural Sciences Building (010A). This \$4.7 million facility is about to go out to bid and is designed to meet the needs of our scientists in an energy efficient manner. In addition to these important projects, we are moving ahead with the design phase for improvements to the infrastructure on BARC-East. This is a necessary first step for the renovation and building plans we have for LPSI and BHNRC.

Plans are underway for two field days in 1996. On Earth Day, in March, we will be holding a field day to highlight our work in waste utilization and composting. This will be coordinated by Dr. Ron Korcak, PSI. In the early Summer, we will have another Sustainable Agriculture Field Day. This annual event has been very well received by our stakeholders and is an effective way for us to highlight the work that we are doing in the area of sustainable agriculture. I would invite you to attend both of these events if you can.

No doubt we will continue to face changes in ARS and throughout Beltsville. I am confident that these changes will afford us new opportunities.

K. DARWIN MURRELL
Director, BA

The Aquaculture Information Center

The Aquaculture Information Center at the National Agricultural Library is currently seeking volunteers to assist with information activities that support U.S. aquaculture research, development and commercialization. Aquaculture is receiving widespread recognition as a profitable alternative agricultural opportunity for farmers and a means for producing sustainable high quality nutritious products for consumers. The scope of the center covers all subjects related to controlled culture of aquatic plants and animals (primarily fish and shellfish), and includes aquafarming practices, diseases, nutrition, water quality, financing, regulatory issues, and economics and marketing.

Volunteers would provide a valuable service in supporting the information needs of a wide range of clientele (farmers, researchers, university staff and students, business, educators, federal and state government employees, Congressional staff, administrators, and the general public). Various types of volunteer support include: receiving phone inquiries, processing written correspondence, typing, filing, and conducting publication inventories; responding to information requests on a wide range of aquaculture subjects; developing a variety of publications; searching databases on CD-ROM; and accessing aquaculture information through existing networks.

Volunteers can elect to provide service in one or several areas based on their interest, skills, and/or experience. We also encourage USDA retirees or volunteers with strong scientific backgrounds that would like to provide reference and technical assistance in their subject specialties. Training will be provided by Aquaculture Information Center staff, as needed.

Past volunteers have committed as little as two hours weekly to as long as 20 hours weekly. If interested, please contact the Aquaculture Information Center at (301) 504-5558.

Coordinator, Aquaculture Information Center

ARS NATIONAL VISITOR CENTER (NVC)

NVC Highlights, Fall 1995

Foreign Guests:

During the fall, delegations from research institutions in the Far East, India, former Soviet countries, Europe, Africa, South America and Central America were all drawn to Beltsville. Most of them were here with study tours of the U.S. agricultural systems. Working with the ARS Office of International Research Programs, the National Visitor Center tried to match interests of the groups, subject-by-subject, with any of some 500 experts available in the Area.

- A group from Mozambique, following a disruptive civil war, arrived to build relations with U.S. researchers and start the process of exchanging sugarcane and other plant germplasm.
- The latest group from Romania included their Minister of Agriculture, Dr. Valeriu Tabara. The former Soviet block nation had no cooperative research agreements with ARS. The Minister and ten others spent a day here scanning our research with ARS scientists and administrators.

- In contrast, the high-level Science and Technology Commission from China were prepared to discuss extending the time periods for 22 existing short-term agreements signed since 1979 with ARS on topics ranging from alfalfa breeding to corn borer biocontrols and plant viroids.

Another highlight of interest to Beltsville is how we solved a scheduling crisis in November. A flood of incoming calls from foreign groups required appointments within a short period of time. Colleagues at the USDA's Foreign Agriculture Service, who try to include Beltsville on extended foreign study tours, advised us not to accept requests through commercial travel agencies unless they have an official sanction. This fall, for the first time then, we sought help from several embassies on such requests. William Brandt, Counselor at the U.S. Embassy in Beijing, FAXed to remind us that Beltsville has special meaning in foreign agriculture circles, and that exposing visitors from the rural Chinese provinces to U.S. ideas will surely "make sledding easier" in relations. Such help keeps us focused on objective science information and away from politics, and avoids the possibility of giving away U.S. technology inadvertently.

Education:

Faculty from various high schools and colleges asked us to emphasize careers in agricultural research for their students:

- In the case of Stephanie Scales' 11th grade girls from Holton Arms (private) High School, she asked for a certain kind of role model. We arranged for them to meet and talk with a couple of younger female researchers in support roles. Plant pathologist Margaret Brannigan showed the girls how she captures plant pests with electron microscopes and biologist Patricia Boyd showed them the pests of another kind, National Animal Parasite Collection.
- Various universities' science classes were also treated to outstanding slide-talks by senior scientists, including Dr. Martin Shapiro on the history of pest management, Dr. Perry Cregan on alfalfa molecular biology, and Dr. Autar Matoo on plant growth and development.
- The Food and Agriculture Careers in Technology and Science helped over a hundred local high school students discover a dozen different careers in agricultural research. Dr. Ellen Harris, Assistant Director of the Beltsville Human Nutrition Research Center, organized the day and several Road Scholar volunteers from the Visitor Center participated.
- 9 elementary school classes; ● 13 middle and high schools; ● Colleges; University(s) of Maryland, Illinois; Penn State; Hood College; and the Defense Intelligence College (DOD).

For Professional and General Public Visitors:

- We added several new attractions in the fall. The Bee Research Laboratory arranged to have their demonstration honey bee hive set up. The Systematic Entomology Laboratory provided their CD-ROM program for identifying flies, and the Remote Sensing Laboratory provided software showing videos of crops from space.
- We provided tours for several scientific conferences at Beltsville including those on composting, dairy, The Federal Laboratory Consortium, and New Users (Products) Council.

- Reporters from Brazil, Korea, Japan, and USDA-Channel 9 in Washington, D.C., researched stories here.
- Richard Baltimore, the Senior Policy Advisor to the Assistant Secretary of State for European and Canadian Affairs, led a 32-member senior seminar of the State Department's Foreign Service Institute.
- Maureen Kelly, Director, Legislative Affairs for the Research, Education, and Economic agencies of USDA.

BELTSVILLE RESEARCH, A CONTINUING STORY

A daily dose of the blue-green algae Spirulina may help prevent cancer of the mouth, a study shows. The finding could benefit people in developing countries where the algae is cheaper than vitamins. After one year of consuming only one gram of the algae daily, 45 percent of the volunteers had complete regression of the thick, white, pre-cancerous patches in the mouth known as leukoplakia. Taking in to account those volunteers who showed significant improvement raised the figure to 57 percent who benefitted from Spirulina. That compared to seven percent of those who got a placebo. The study-the first human evaluation of the cancer-preventive potential of Spirulina-was coordinated by an ARS researcher and conducted in southwestern India where the incidence of leukoplakia is high. The researchers tested Spirulina because it is an inexpensive source of beta carotene and related carotenoids in many developing countries. In other research, the algae has inhibited oral cancer in animal studies, while beta carotene or vitamin A supplements have reversed pre-cancerous conditions in people's mouths. Cancer of the mouth and of the Cervix-which has the same kind of mucus membrane-is on the rise worldwide.

Beltsville Human Nutrition Research Center
Padmanabhan P. Nair, (301) 504-8145

A new ranking system identifies the total financial worth of milk-producing cows in a dairy herd. Dairy producers can use the rankings in making breeding decisions for peak milk production and profits. Originally, the system was developed by ARS scientists for evaluating dairy bulls. Known at Net Merit, the new system is based on the economic value of a dairy cow's genetics-its milk quality, productive lifespan and resistance to mastitis, a dairy cow disease. It goes beyond the practice of measuring common pounds of milk a year as a yardstick for a cow's performance. A report of the ranking data, updated twice a year, is available to producers nationwide. It's also part of commercially available computer databases. Net Merit rankings also help farmers pick animals to sell to artificial insemination and embryo transfer services.

Animal Improvement Laboratory
Duane Norman, (301) 504-8092

ANNUAL MEETING MARCH 12, 1996
2 P.M. VISITOR CENTER (LOG LODGE)
REFRESHMENTS FOLLOWING



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)
P.O. Box 1061, Beltsville, MD 20704-1061

May 1996

PRESIDENT'S REPORT

On Tuesday March 12, 1996, FAR-B held its 11th Annual Meeting at the National Visitor Center, Beltsville, Maryland. The highlight of our meeting was a guest lecture by Dr. Floyd Horn, Administrator of ARS. At a time when many government agencies are experiencing the prospects of reduced budgets and generally downsizing, Dr. Horn pointed out that ARS still continued to show a modest budget increase this fiscal year. He also pointed out that future budgets may be tighter than in recent years, but ARS continues to be optimistic about funding the agency's research mission. In a sense, FAR-B members, both those still actively working and retired, can take some pride in the vote of confidence Congress continues to show in the success of ARS's program.

Just prior to the Annual Meeting, we held a Board of Directors' Meeting to elect a new President. I was honored to be asked to serve FAR-B in this capacity. The vacancy caused by my election allowed us to appoint a new Board Director. I am pleased to announce the election of Essex E. Finney. Essex brings a wealth of experience to FAR-B as a top ARS scientist and administrator. Special thanks are due to Frank Longen, who served as the acting President of FAR-B for the last 12 months. Due to the outstanding efforts of John Moseman, Immediate Past President and Frank Longen, FAR-B is in excellent shape from both a financial and membership standpoint. John and Frank continue to work with us in guiding FAR-B's activities.

Thanks to the combined leadership efforts of Tom Sexton and Walter Rawls on a special Advisory Committee for FAR-B established by Dr. Murrell, Area Director, to increase our associate membership at Beltsville, we have over 60 new Associates. This brings our total membership to 168.

On May 19 we will hold the 21st Annual BARC Symposium "Global Genetic Resources - Access, Ownership, and Intellectual Property Rights". Details concerning this symposium are spelled out later in the Newsletter. In conjunction with our continued cooperation with BARC in sponsoring this internationally recognized symposium series, we have developed a full color FAR-B poster to be used in connection with future symposia. Many people played a role in designing the poster, but special recognition is due to Steve Berberich for carrying this project to completion. We hope to place copies of the poster at strategic locations at BARC to encourage new membership in FAR-B.

Recently FAR-B has gone on-line on the INTERNET. You can access the FAR-B home page at <http://hydrolab.arsusda.gov/farb.html> if you have a modem on your computer. The site features the mission of FAR-B, a section on Beltsville, a complete program for BARC

Symposium XXI and information on the National Visitor Center. We will update this site periodically with the program for each subsequent BARC Symposium.

Philip C. Kearney
President

BELTSVILLE SYMPOSIUM XXI

During these last three weeks, preparations for the Beltsville Symposium XXI on "Global Genetic Resources: Access, Ownership and Intellectual Property Rights," May 19-22, 1996, are progressing well. The meeting is jointly sponsored by the Beltsville Area and the Association of Systematics Collections. The purpose of the meeting is to explore issues related to ownership of, and access to, genetic resources and biological specimens as they affect the ability of scientists to do their job of providing knowledge to benefit the people of the world. All international, national, and local speakers have been confirmed. The booklet with final schedule and abstracts of presentations and posters, as well as the brief biographies of each speaker has gone to the printer. The booklet includes a biography of the FAR-B Award winner, Dr. James Duke, who will receive his award at the beginning of the Symposium. It will be presented by Dr. Angus A. Hanson. The ASC Award for Service will be presented to Dr. Lorin Nevling, Illinois Natural History Survey, Champagne, IL. Arrangements have been finalized for the banquet dinner at the newly opened Patuxent Wildlife Refuge Visitors Center. On the shores of Lake Redington and conveniently located off Powder Mill Rd, this should be an outstanding evening event. Registration for the Symposium is approaching 200, with a number of participants expected to register on the first day of the meeting. Retired FAR-B members may attend all technical sessions free of charge. They are also welcome to attend the social events at cost. The Banquet for retired FAR-B members is \$30, and \$20 for any other social function. Registration forms can be obtained from: Virginia Hupfer, B003, Rm. 220, 10300 Baltimore Avenue, Beltsville, MD 20705-2350, 301-504-6108, fax 301-504-6357, email: mbohning@ars-grin.gov.

Symposium Co-Chairs are: Amy Y. Rossman, Systematic Botany and Mycology Laboratory, Rm. 304, B011A, Beltsville, MD 20705, 301-504-5366, fax 301-504-5810; and Thomas Elias, National Arboretum, Washington, DC 20002, 202-347-2850, fax 202-245-4575; and Elaine Hoagland, Executive Director, Association of Systematics Collections, 1725-K St., NW, Suite 601, Washington, DC 20006-1401, 202-835-9050; fax 202-835-7334.

AMY Y. ROSSMAN
THOMAS ELIAS
ELAINE HOAGLAND
Co-Chairs, Symposium XXI

DIRECTOR'S COMMENTS

In the last letter, you learned that Dr. Gordon Marten had retired and that Dr. Darwin Murrell was on his way to Denmark for 6 months.

Dr. Horn asked me to come over from the National Program Staff (NPS) as Acting Area Director until Dr. Murrell returned early in July; Dr. Joe Spence is filling in as Acting Associate Area Director, while retaining his role as Director of the Beltsville Human Nutrition Research Center (BHNRC). Dr. Barbara Leonhardt's position as Director, Plant Sciences Institute (PSI), has been confirmed but we still haven't filled the vacancy for NRI Director. We hope to fill the Deputy Area Director of Facilities Management and Operations Division (FMOD) position in the very near future.

Also since the last letter, the President released his budget proposals for FY-97 (starting October, 1996). Considering the overall budget climate, ARS came out smelling like a rose and the Beltsville Area cannot complain, either. At the agency level, the proposed budget shows an increase of about 2% to \$726M. For BA there is proposed a decrease of \$2,707.5K and an increase of \$4,750K, for a net increase of \$2,042.5K.

Although the net result is an increase, those people impacted by the proposal to discontinue some projects are less than happy. All will be offered positions in ARS, but not necessarily in Beltsville. We have begun the process of adjusting to the change and a number of employees have already been reassigned. We still have a way to go, and we are making every effort to keep the employees informed and involved.

Progress is being made on modernization, as outlined in Murrell's column last time. A disappointment was to learn that the '97 budget included only \$4.5M for modernization, less than we had hoped. Besides the need to complete several ongoing construction projects elsewhere, ARS also faced the dilemma that the next BA project (BHNRC) is a large one; we are not permitted to request partial funding for construction, and the total required for BHNRC was too much for this year's budget.

After an anxious period with low early registration, we now are confident that this year's Beltsville Symposium will again be a success; registration has picked up and we expect good attendance. Thanks to FAR-B for its help in managing these symposia.

As this is being written, we received a message that USDA has decided to proceed with the construction of an office complex near the Greenbelt Metro Station. It is expected that a notice to proceed will be sent some time in May. As you know, this is a USDA project and not an ARS project.

Dr. Horn has testified before both the House and Senate Subcommittees on Appropriations. He was well received in both cases. In the House especially, a number of sharp questions were asked, but all in a manner that was favorable to ARS. Now we await first the mark-up, and then the final action.

We have scheduled a public field day for June 29. There will be tents in front of Building 003 with exhibits, and tours of both BARC-E and BARC-W. We hope to see you there. The field day on composting, announced earlier, had to be postponed because the State of Maryland still hasn't issued the proper permits. The Sustainable Agriculture day is scheduled for July 18.

On May 2, the new bonsai facilities at the Arboretum will be dedicated. Made possible by substantial gifts and both Japanese and American enthusiasts, the new facilities and expanded collection make this exhibit a unique and beautiful adjunct to ARS and to Washington.

In the short time I have been in the Director's Office, I have learned to appreciate FAR-B. The Friends of Agricultural Research-Beltsville are a great asset; they make it possible to do important things that otherwise would be difficult to accomplish, they help us tell the story of BARC and, thus, they help us be good neighbors. My thanks to you members.

Jan van Schilfgaarde
Acting Area Director, BA

JAMES A. DUKE TO RECEIVE FAR-B DISTINGUISHED SCIENTIST AWARD

The FAR-B Board of Directors and the 1996 Symposium Committee are pleased to announce that James A. Duke has been selected to receive the 1996 FAR-B Distinguished Scientist Award. FAR-B has established a practice of presenting an award to a scientist who has had a distinguished career in an area of research related to the subject matter of each year's symposium.

Dr. James A. Duke was hired by the USDA, ARS in 1963 as an ecologist located in Beltsville, Maryland. In 1965 he resigned from the USDA to join the Battelle Columbus Laboratories to conduct ecological and ethnobotanical studies in Panama and Columbia. In 1971 Dr. Duke rejoined the USDA and undertook numerous assignments relating to crop diversification, medicinal plants, and energy plant studies in the United States and in developing countries.

During his career, Dr. Duke prepared an encyclopedia of economic plants, published on a wide range of subjects, and collaborated with the National Cancer Institute on their AIDS and cancer screening programs. Dr. Duke also developed databases on the ecology, nutritional content, folk medicinal uses and chemical constituents of more than 1,000 plant species. These databases are online and available to anyone worldwide to access and use.

Since his retirement in September 1995, Dr. Duke has continued to add additional data to the databases.

Dr. Duke is a member of numerous scientific societies and served as an advisor or unpaid consultant to many organizations including: The Amazon Center for Environmental Education and Research, and the Center for Plant Conservation to name a few. Throughout his career, Dr. Duke was a very productive research scientist, and a very prolific and effective writer and lecturer on many topics related to economic botany.

REGRETS....

It is with sincere regrets that we report the passing of two of our FAR-B Charter Members. On February 25, Dr. Aurel O. Foster died of a pulmonary ailment at the age of 89. Dr. Foster retired in 1971 as Director of the Parasitology Laboratory at Beltsville. He worked for ARS for 36 years, starting as a parasitologist specializing in animal parasite control. Dr. Foster was raised in Englewood, New Jersey, and graduated from Wesleyan University where he also received a Master's Degree. He received his doctorate from Johns Hopkins University School of Hygiene and Public Health. He initially worked in Panama studying tropical diseases and parasites, and later taught at the University of Maryland before joining ARS. Dr. Foster was a past President of the American Society of Parasitologists, and also a past Chairman of the Rayton H. Ramson Memorial Trust Fund at Johns Hopkins which funds scientific scholarships. He was also active in community affairs in College Park, MD where he resided.

Mr. Ernest G. Moore, who retired in 1965 as Director of the ARS Information Division, passed away on April 10 at his home in Bethesda, MD. He was 93 years old. Mr. Moore worked in the information offices of the USDA during a 36-year career that began in 1929. He served as chief of the USDA Press Service before being named Assistant Director of Information, overseeing press and radio activities. After the 1954 reorganization of the USDA he became Director of the Information Division of ARS. After his retirement he wrote "Agricultural Research Service", a historical account of the office in which he worked. A native of Craven County, NC, Mr. Moore graduated from North Carolina State University where he later received a master's degree in agricultural journalism.

BELTSVILLE RESEARCH, A CONTINUING STORY

Cooperative Research and Development Agreements

...With Perdue Farms of Salisbury, MD, to turn chicken feathers into a biodegradable substitute for wood or synthetic fibers such as plastics or nylon. By studying feathers in a magnetic resonance spectrometer, a device similar to the MRI imagers used in hospitals for brain scans, an ARS scientist discovered the properties that make the feather an engineering marvel. It has strong fibers that are more absorbent than wood or plastic. A newly-developed, fiber separation process uses less water, energy and chemicals than for other

fibers. Initially, the feather fibers will be used in disposable diapers, hospital "wipes" and feminine hygiene napkins. Future products may include air filters, oil filters, specialty papers and structural composites similar to fiberglass. Feather fibers cost less than most wood or synthetic fibers. They also distribute moisture more evenly, increasing the fiber's absorbency powers. And they can be composted in anyone's backyard in three weeks, as long as commercially available microbes are added.

ARS Contact:
Walter F. Schmidt
Environmental Chemistry Lab

A protein found in stored Golden Delicious apples can protect the fruit from storage rots. Also present in pears, tomatoes and raspberries, the protein stops the rampage of an enzyme produced by a pathogenic fungus, that attacks fruit after harvest. This is the first time that the protein, called polygalacturonase-inhibiting protein, has been purified from apples. Found in the apples by ARS scientists, the protein decreases as the fruit matures. The decrease occurs at a time when the fruit still needs protection from organisms that cause decay. Growers have long protected fruit from rots with fungicides, but many of the chemicals are no longer available because of health and environmental concerns. Scientists are cloning the gene responsible for producing the protein. They plan to manipulate the gene to produce large amounts of the protein as the fruit matures. It will be some time before they produce transgenic apple trees with the new gene, but once it has been inserted into tissue-cultured plants, they will be ready for field testing.

Horticultural Crops Quality Lab
William S. Conway/Chenglin Yao

Just because a cat has antibodies in its blood indicating previous infection with *Toxoplasma gondii* is no assurance that it can't become reinfected with the parasite. That's in sharp contrast to the longstanding belief that once infected, a cat could not become reinfected later and begin shedding an egg-like form of *T. gondii* again in its feces. Now, ARS researchers are testing a commercially developed vaccine for cats that makes them immune to infection by *T. gondii* and stops the parasite-egg shedding. Cats would be vaccinated annually, especially weaned kittens that are a main source of infection. Although *T. gondii* infects animals and humans worldwide, cats are the only creatures known to excrete *T. gondii* oocysts, a form of the parasite that easily withstands nature's harshness. Humans can become infected by swallowing the oocysts. Healthy people other than pregnant women can weather *T. gondii* infection with few ill effects. But if a pregnant woman becomes infected, there is a 20 to 50 percent probability that her baby will be infected, possibly resulting in blindness, mental retardation or other medical problems for the child. The national cost of raising children infected this way was estimated in 1993 at \$5.3 billion.

Parasite Biology and Epidemiology
Laboratory
J. P. Dubey



FAR-B NEWSLETTER

Friends of Agricultural Research-Beltsville, Inc. (FAR-B)
(Cooperating with the Agricultural Research Service
at Beltsville, Maryland)
P.O. Box 1061, Beltsville, MD 20704-1061

October 1996

PRESIDENT'S REPORT

The new, full color FAR-B poster serves as the cover for our 1996 Membership Directory enclosed with this issue of our Newsletter. Through the use of color computer graphics, we were able to reduce the size of our regular poster from 10 x 20 inches to regular paper size. Thanks to our friends in the Hydrology Laboratory, Natural Resources Institute, about 200 copies of the small poster were reproduced on a color copier. The extra copies were used as part of our membership drive, where large and small posters were placed on bulletin boards in all major buildings at BARC. We also exhibited the poster, with FAR-B brochures, at the Prince George's County, Montgomery County and Maryland State Fairs. We are effectively getting our message out on the benefits FAR-B is providing to enhance the research program at the Beltsville Agricultural Research Center.

Two important contributions to FAR-B were received from the Pioneer Seed Company (\$500) as a Sustaining Member and from Merck & Company, Inc. (\$5000) in appreciation for the research accomplishments of BA scientists. Funds collected from contributions and membership dues by FAR-B are used to support various BARC activities, such as the Fourth Annual Sustainable and IPM Field Day, July 16, 1996, the recently concluded 1996 BARC symposium on Genetic Resources, and two upcoming events -- a Minisymposium on Future Trends in Crop Production and the Beltsville Swine Research Field Days, sponsored by the Livestock and Poultry Sciences Institute, to highlight the major contributions BARC has made to this important industry.

We are in the initial planning stages of Beltsville Symposium XXII Beneficial Co-Utilization of Agricultural, Municipal and Industrial By-Products, scheduled for May 4-8, 1997. You can visit the BARC '97 Home Page for the latest information and program inclusions at: <http://www.barc.usda.gov/symp97.html> or FAX (301) 504-6357. This symposium should have wide appeal, since it addresses important urban and rural issues.

Virginia Hupfer, who served as FAR-B's long term Executive Secretary has transferred to a new position in the Beltsville Human Nutrition Research Center. Ginger not only handled a lot of FAR-B's business, but served as the BARC Symposium Secretary. At our September 10th Board of Directors meeting, we presented Ginger with a bouquet of cut flowers for her dedicated service. The BARC Symposium Series will be handled by the organizers in the future. Alice Murray, Hydrology Laboratory, will assist FAR-B by providing some secretarial help. Alice can be reached at Beltsville in Rm 104, Bldg. 007, BARC-West, (301) 504-7490 or FAX (301) 504-8931.

Philip C. Kearney
President

BELTSVILLE SYMPOSIUM XXI: Global Genetic Resources: Access, Ownership and Intellectual Property Rights -- Final Report

The Beltsville Symposium XXI held May 19-22, 1996 was a success! Final registration reached 251 participants representing fifteen countries. Both the speakers and audience were diverse ranging from lawyers, economists, and policy-makers to scientists of many disciplines. The discussion was never dull yet the concern for the future of biological resources was a unifying theme. All who attended the meeting had their perspectives on these controversial issues expanded by the diverse presentations and discussion.

Many individuals contributed to the success of this Symposium all of whom are warmly thanked, and letters of appreciation and cash awards were given as tokens of their willingness to perform responsibilities above and beyond their regular duties. From the roast beef and chocolate-dipped strawberries of the opening social to the evening tapis dinner at the National Wildlife Visitors Center, the Symposium participants were well-cared for. Despite the slow registration and worries of impending financial disaster, the final accounting reveals the Symposium more than paid for itself. The publication of the Proceedings is progressing well with all manuscripts received, reviewed and edited except one. It is anticipated that the camera-ready copy will be sent to the printer by the end of October with distribution to occur six weeks thereafter. The Proceedings will be distributed to all Symposium registrants and will be available to others at a minimal cost.

Amy Y. Rossman, Symposium Chair
Systematic Botany and Mycology Laboratory

BELTSVILLE SYMPOSIUM XXII

The 1997 Beltsville Symposium "Beneficial Co-Utilization of Agricultural, Municipal, and Industrial By-Products", scheduled for May 4-8, 1997, deals with innovative strategies and applications for the safe and beneficial recycling of biosolids, composts, manures, and various processing by-products (organic and inorganic). The agronomic, environmental, horticultural, and socio-economic implications and opportunities will be featured in 35 presentations. In addition, there will be two open panel forums and poster sessions on associated research, demonstrations, and case studies. Both public and private sectors have shown a strong interest in the topics to be addressed, and, hopefully, some will be able to co-sponsor the event. A letter soliciting sponsors has been drafted and will be discussed at the next FAR-B meeting. Suggestions for additional co-sponsors and/or contacts are welcome, and can be provided to FAR-B representative Mort Beroza, or the Symposium Co-Chairs: Patricia Millner, Soil Microbial Systems Lab, 504-8163, Robert Wright, Environmental Chemistry Lab, 504-6511, or Ron Korcak, Plant Sciences Institute, 504-6591.

Patricia D. Millner
Symposium XXII Co-Chair

DIRECTOR'S COMMENTS

I want to take this opportunity to thank all of the FAR-B members that I had the pleasure to work with while I was on detail as Acting Associate Area Director. That detail was professionally and personally very rewarding for me. I always knew what a great place the Beltsville Agricultural Research Center is, but in my role of Director of the Beltsville Human Nutrition Research Center, I had a rather narrow view of BARC. While on detail, I sat in on countless lab reviews and saw first hand the research being conducted in all of the Institutes and Centers. I have to say that I think many of us take for granted the truly outstanding research conducted here at BARC. Beltsville genuinely deserves its reputation as an internationally recognized center of excellence for agricultural research!

One of the truly special aspects of Beltsville is the presence and support of FAR-B. Through the efforts of your organization, all of the scientists at BARC benefit from the flexibility and program support that you provide. Just as there is a tendency to take for granted the scientific excellence at BARC, it is also easy to take the support of FAR-B for granted. After working with many of you and seeing the concern for and enthusiasm you share for Beltsville, you can bet that I will take whatever opportunity I can to let our staff know about the help that FAR-B provides to all of us here at BARC. Just as important, we need to encourage every employee and the entire membership of FAR-B to be as creative as possible and think of ways that FAR-B can continue to advance agricultural research at Beltsville.

BARC, like much of the Federal research enterprise, faces many difficult challenges in the years ahead. In recent years, we have lost many scientists and support staff, our budgets have been reduced, and modernization and facility maintenance have been delayed. These are likely to be hurdles that we will have to overcome for some time. I think that with FAR-B as a partner, there is every reason to be optimistic that we will be able to overcome all of these hurdles as well as any other surprises that may be in store for us.

Again, I want to thank the membership of FAR-B for their tireless support and I want to thank those of you whom I had the pleasure of working with over the past ten months for the insights and advice I received as Acting Associate Area Director. I hope that you will soon have the opportunity to meet Dr. Phyllis Johnson, Associate Area Director, and to work with her. As a newcomer to BARC, I can think of no better group than FAR-B to bring her up to speed quickly on the history and legacy of outstanding agricultural research that exists at Beltsville.

Joseph T. Spence, Director
Beltsville Human Nutrition Research Center

REGRETS.

It is with sincere regret that we report to our members the deaths of three well-known personalities at BARC during the past few months. All were long-time FAR-B members and supporters. They are as follows:

DR. WILLIAM J. VANDERWOUDE

We were saddened to learn of the untimely death of Dr. William J. VanDerWoude, Plant Physiologist in the Climate Stress Lab at Beltsville. He died of complications during liver surgery on June 7, 1996. He was 53 years old. Bill received his Ph.D. from Purdue University in 1972 and worked at the University of California, Riverside, as an Assistant Professor before starting his career with ARS in 1977. After joining ARS, he served first in the Seed Laboratory. He had been part of the Climate Stress Laboratory since 1990. Bill was well-known for his studies on membrane structure and function. While at Beltsville he developed several novel, and now widely accepted, theories based on phytochrome membrane interactions to explain the control of seed germination by light, temperature, and growth regulators. His observations helped to explain several long-standing paradoxes concerning phytochrome and opened the way for practical control of weed seed germination through nocturnal cultivation. Bill was the chief organizer and Co-Chair of Beltsville International Symposium XVI, "Photomorphogenesis in Plants: Emerging Strategies for Crop Improvement", in September 1991. Bill is survived by his wife, Gladys, two sons, Glenn and Brian, and his daughter, Karen.

JANE D. WALL

We were saddened to learn of the death of Mrs. Jane D. Wall on June 10, 1996. Jane was a Charter Member of FAR-B and served as our first Vice President, and as Editor of the FAR-B Newsletter for a number of years. Jane was born and raised in Minneapolis, Minnesota. She was a Phi Beta Kappa graduate of DePaul University and also earned a Masters Degree in Journalism from Columbia University. Early in her career she was an Editorial Assistant to Dr. Douglas Freeman, a noted Southern author. She met her to-be husband, Malcolm, at William and Mary College and they were married in 1940. Her husband's career took them to various locations in the U.S. where Jane always found work in her chosen profession, technical writing and editing. They moved to Maryland in 1963 and Jane took a job as Technical Editor at the Cancer Institute at NIH. In 1967 she accepted a similar position in the former Entomology Research Division of ARS and, after the 1972 reorganization, she worked as a Technical Editor on the ARS National Program Staff. Jane had a reputation as being extremely helpful to ARS scientists in preparing manuscripts for publication in peer-reviewed scientific journals, particularly young scientists inexperienced at writing manuscripts. Jane retired in 1981 but remained active in various volunteer assignments. She will be remembered for all her outstanding accomplishments.

DR. STEPHEN L. SINDEN

Dr. Stephen L. Sinden, a Research Plant Physiologist at BARC since coming to the Washington area in 1968, died at his home in Greenbelt on July 6, 1996. He was 58. At the time of his death, Dr. Sinden was a Research Leader in the Vegetable Laboratory at BARC.

Dr. Sinden was a native of Bellefont, PA and a Cornell University graduate. He received a doctorate in Plant Pathology from the University of California at Davis, and began working for ARS in 1967 while doing postdoctoral work at the University of Wisconsin. He was a member of the Potato

Association of America, the American Society of Horticultural Sciences, and Phi Beta Kappa. Dr. Sinden was also active in a number of community affairs, serving on the board of Greenbelt Homes, Inc., serving as a Cub Master with the Cub Scouts and as a volunteer with the Junior Tennis League, and participating as a science fair judge at Eleanor Roosevelt High School. He was a member of Greenbelt Community Church and of the Greenbelt Museum, and had been a member of FAR-B for many years.

ARS NATIONAL VISITOR CENTER

USDA Foreign Service Nationals are employees of the department who stay in their home countries to serve as agricultural liaison officers in a variety of roles. We had the pleasure and great interest in hosting two groups of FSNs on September 17 and 24. The differing nature of their work--depending on big or little country, trade status, and agricultural sectors -- surfaced in our discussions of ARS programs. We discussed new products, biotechnology potentials and communications technologies. These new friends of Beltsville and ARS returned to 29 different countries with most of their questions answered, we hope.

Barbara Glenn, Research Leader, Nutrient Conservation and Metabolism Lab, hosted research meetings with 22 agricultural scientists and extension agents from Iceland, then turned the group over to the National Visitor Center (NVC). Thoroddor Sveinsson, Research Director of their Agricultural Research Institute's Experiment Station, led a discussion comparing Maryland and Iceland crops and growing conditions.

The University of Tennessee brought 45 of that state's leading and affluent farmers (on the most luxurious bus since The Big Bus). An afternoon of farm-related questions dominated their visit. NOTE: For farmer groups, it may be a good idea to recruit volunteers--call them "Field Scholars," similar to our Road Scholars--to help with such groups. We would need a few such FS's who have a farming background. Volunteers should call Jeanette Baylor at 504-9403.

We hosted a Minister of Agriculture from the nation of Ghana in West Africa, and a group from Albania. Yes, this was a break-through visit for them.

The Minister of Agriculture of Norway, Gunhild Oyangen brought her husband and daughter for an intense day of research demonstrations on August 13. She is the longest running head of an agriculture department of any Western nation. Yet, Mrs. Oyangen had never seen Beltsville!! She brought an entourage of Ministry members, mostly former scientists. Accompanying the group was Cliff Gabriel, who is no stranger to BARC. Over ten years ago Cliff was a research plant pathologist for ARS at Beltsville. His current position is Deputy to the Associate Director of Science in the White House Office of Science and Technology Policy. He said that Beltsville had and continues to have a profoundly positive impression on him.

The Chinese Embassy sent two groups, including one delegation led by their Minister-Counselor for Science and Technology. There have been over 500 scientific exchange visits of Chinese and American scientists since they opened their doors to a USDA delegation of plant scientists in 1979. We now have over 20 cooperative research agreements with China and over a half-dozen Chinese

visiting scientists in ARS laboratories.

Comparing technology notes on irrigation was the topic of Turkish and Australian visitors. Seven presidents of Turkish Irrigation Cooperatives came via an invitation of the USDA's Foreign Agriculture Service. David Farrell, National Program Leader for Hydrology and an Australian-American opened a comprehensive program of research talks for a study group of grain and cotton farmers from that country.

Marian Pournelle, Counselor, Agricultural Sciences (and former plant cell culture scientist), from the South African Embassy sent several envoy groups to BARC to begin work on new cooperation research agreements. For example, we split in half a visit by prominent research managers from South Africa. We designed one program featuring biotech for Johan Brink, Program Manager for Biotechnology. Roelof De Villiers of their Agricultural Research Council enjoyed the second program which featured sustaining natural resources.

Dr. Chang-hung Chou, Director of Taiwan's Institute of Botany is a former classmate of ARS Plant Physiologist Edward Lee in the Climate Stress Laboratory. Chou presented a seminar on plant allelopathy (botano-chemical warfare), visited with BA Director Darwin Murrell and toured the NVC.

At the same time a TV documentary crew from mainland China spent a couple days here taping part of their production, "Agriculture in the United States." They promised us a copy.

Thanks to the raw genius of our secretary, Jeanette Baylor, we have established a regular schedule of public tours on Tuesdays and Thursdays at 1:30 p.m.

And a special thank you to FAR-B for funding our best summer intern yet!! Christina Valentine is a sophomore at St. Mary's College in Maryland. She updated all of our exhibit hall news racks and helped develop presentations on animal parasites and compost.

Korona Prince of the Civil Rights Office funded another intern Karen Kaczorowski, who was our best summer intern yet!! (They have ALL been great.) Karen was very helpful in developing text on ARS Hall of Science Hall of Fame inductees for the Agency's Worldwide Webb page. Karen is a senior at the University of Maryland's Baltimore Campus. She will go to graduate school in plant sciences.

Steve Berberich
National Visitor Center